# ACCOUNTING FOR SOFTWARE IN THE UNITED STATES

Volume One of Three Volumes

Submitted By

ROBERT WILLIAM MCGEE

In partial fulfillment of the Doctor of Philosophy Degree
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## DECLARATION

Portions of the preliminary findings of this thesis have been published in a variety of books and journals. The most important of these are:

"Accounting for Software--A Progress Report." Management Accounting, January, 1983, 38, 66.

Accounting for Software Costs, (New York: National Association of Accountants, 1984).

The Effects of Software Accounting Policies on Bank Lending Decisions and Stock Price, (New York: National Association of Accountants, 1984).

Software Taxation, (New York: National Association of Accountants, 1984).

Accounting for Software, (Homewood, IL: Dow Jones-Irwin, 1985).

"Sales, Use and Property Taxation of Computer Software." Hamline Law Review, Volume 8, No. 2(May), 1985.

"Financial and Tax Accounting for Computer Software." Western New England Law Review, Volume 7, Issue 3(Spring), 1985, 651-704.

## LIST OF TABLES

## SUMMARY

This thesis represents the first major research to be completed either in the United Kingdom or the United States on the subject of accounting for software. Part I concentrates on the financial aspects of software accounting, and consisted of in-person interviews with a number of individuals from software vendor and user companies who are knowledgeable about software accounting. The interviews were followed by two mail questionnaires, one each to software vending company executives and software user company executives. The NAARS database was also used to determine how software accounting policies are disclosed for these two types of company. It was concluded that more than one policy exists in practice. While approximately 90% of the companies surveyed expense internally constructed software, about two-thirds capitalize the cost of purchased software. Reasons given for individual company policy seem to be based on expediency rather than good accounting theory.

The interviews and questionnaire responses in Part I seemed to indicate that software vendor companies that capitalize software find it easier to raise debt and equity capital than do companies which expense software costs. Part II presents the results of two questionnaires that were mailed to bank lending officers and one questionnaire that was mailed to financial analysts for the purpose of obtaining more information on this point. It was concluded that companies that capitalize software costs find it significantly easier to obtain bank loans than do companies that expense software costs. The effect on stock price was less clear cut, although the questionnaire responses did indicate that a company's software accounting policy does influence the value a financial analyst places on a company's stock.

Part III discusses the United States federal and state tax aspects of software. Thirteen appendices giving supplementary data are also included.

# CHAPTER ONE

# FINANCIAL ACCOUNTING FOR SOFTWARE

## BACKGROUND

In the decade following World War II, companies began to use computers to solve business problems and process data to an ever increasing extent. At this early stage in the development of the computer industry, the companies that manufactured computer hardware also produced the software that was used with the machines. These manufacturers generally sold the systems software as part of the hardware without breaking down the purchase price into its hardware and software components. The companies that used the hardware hired employees to construct whatever "custom" (individualized) software that might be needed. Very few companies constructed systems or applications software for sale apart from sales that were "bundled" with hardware.

As the use of computers became more prevalent in the 1960s, the demand for custom programming increased and led to the development of a new industry that would supply these software users with the programs they needed. However, it was still not a common practice to purchase application programs because these were supplied free of charge by the hardware manufacturer.

In June, 1969, the policy of bundling hardware and software costs changed when IBM decided to "unbundle," that is,

to state the cost of the software and hardware separately.[1] This policy resulted in the creation of a new industry, the software industry, whose members began to produce software for sale to users of hardware. Companies that formerly wrote their own software now had an option -- they could purchase it. This option became very attractive, as the cost of developing a program might run into six or seven figures, whereas a comparable program could be purchased for $50,000 or less. This cost relationship led to a rapid increase in the number of firms that manufacture software for sale, as a program that might cost $1 million to construct could be sold to a multitude of customers for $50,000 each. A software firm would be able to break even after only twenty sales. Any additional sales would be almost pure profit, as the cost of delivering a program is basically equal to the cost of the medium used (tape, disk, etc.) plus selling expenses.

## The Beginning of the Problem -- How to Account for Software

In the same year IBM decided to unbundle, the Internal Revenue Service issued a pronouncement addressing the software issue.[2] (See Appendix D for full text) This Revenue Procedure provided tax accounting guidelines in connection with costs incurred to develop, purchase or lease computer software. Basically, this procedure stated that the costs

associated with the development of software could either be expensed as incurred or capitalized and amortized over five years or less. Thus, software development costs were to be accorded the same treatment as research and development costs[3] for federal tax purposes.

Purchased software could be capitalized along with the hardware if bundled. Software having a separately stated price could be amortized if treated as an intangible asset. Leased software is accorded the same treatment as rentals under regulation 1.162-11.

Two years after that pronouncement was issued, the Internal Revenue Service issued a second pronouncement dealing with software.[4] (See Appendix D) That ruling held that for depreciation and investment tax credit purposes, the cost of a new computer includes software costs not separately stated but capitalized in accordance with the taxpayer's consistent practice. Another pronouncement[5] issued that same year (see Appendix D) held that the capitalization of software costs with respect to a new computer where such costs had previously been expensed is a change in method of accounting requiring the Commissioner's consent.

What is Software?

Prior to June, 1969, when IBM unbundled and created the software industry, there was no need to define software for

accounting purposes, because it was accounted for as part of the hardware. The few programs that were developed internally constituted such a small percentage of total expenditures for most companies that a formal software accounting policy was not needed.

However, as software expenditures continued to increase and become more material, companies began establishing specific policies for software accounting. It was then that the definition of software became important. Unfortunately, there is no single readily accepted definition of software. The broadest definition would be that software includes everything that is not hardware.[6] The definition of software promulgated by the National Bureau of Standards[7] and adopted by the U. S. Bureau of Standards[8] is: "Computer programs, procedures, rules, and possibly associated documentation concerned with the operation of a data processing system."

The Internal Revenue Service defines computer software as:

> "...all programs or routines used to cause a computer to perform a desired task or set of tasks, and the documentation required to describe and maintain those programs. Computer programs of all classes, for example, operating systems, executive

systems, monitors, compilers and translators, assembly routines, and utility programs as well as application programs are included. 'Computer software' does not include procedures which are external to computer operations, such as instructions to transcription operators and external control procedures."[9]

Several courts and State legislatures have also defined software. Some have even made distinctions between systems software and applications software. (The argument could be made that systems software is really part of the hardware, whereas applications software is separate and distinct from the hardware.) The Supreme Court of Tennessee[10] has defined a systems (operational) program as one that is fundamental to the functioning of the hardware, or software that controls the hardware and makes it run.

Bryant and Mather[11] state that systems software consists of:

1. compilers, which are used to translate symbolic code into machine language, and which are also capable of replacing a series of instructions with subroutines;

2. sorts, which assemble and file items of data in a certain sequence or order; and

3. utility routines, which perform functions such as transferring data from one magnetic tape to another.

## The Tangibility Issue

Another problem that grew out of unbundling is the issue of tangibility. The Internal Revenue Service treats software as intangible and, therefore, not eligible for the investment tax credit unless bundled with hardware,[12] but at least one court has ruled that software is tangible and qualifies for the investment tax credit.[13] For state sales,[14] use,[15] and property[16] tax purposes, the majority of courts have held that software is intangible and, therefore, not subject to the tax. However, two recent cases have held otherwise.[17] For Uniform Commercial Code[18] and replevin[19] purposes, software is tangible, but not for collapsible corporation purposes.[20] (Replevin is a personal action brought to recover possession of goods unlawfully taken. A collapsible corporation is a corporation that is formed for the purpose of converting what would otherwise be ordinary income into capital gain.) The sale of a prewritten program is currently taxable in thirty-three states and exempt in thirteen, with a few states not yet taking a position one way or the other.

## Financial Accounting Rules

The present financial accounting rules pertaining to computer software are far from clear. The Financial Accounting Standards Board has issued several pronouncements that deal with software to a limited extent. One pronouncement[21] requires that research and development costs must be expensed as incurred unless an alternative future use exists. (An example of alternative future use would be where an aircraft manufacturer constructs a wind tunnel to test an experimental aircraft. If the company does not intend to use the tunnel to test other types of aircraft, the costs of constructing the wind tunnel would be expensed as research and development. If the company intends to use the tunnel for other projects, the cost of constructing the tunnel would be capitalized rather than expensed.) Another pronouncement[22] states that not all software costs are to be considered research and development costs. A third pronouncement[23] asserts that software costs not qualifying as research and development expenditures are not necessarily inventoriable or deferralbe. None of the FASB pronouncements give clear guidance regarding when computer software qualifies for capitalization treatment, and whether the software costs should be included in the balance sheet as tangible or intangible assets, although FASB Interpreta-

tion No. 6, paragraph 8, footnote 2 seems to indicate that software should be classified as intangible.[24]

The Accounting Principles Board, the predecessor of the Financial Accounting Standards Board, issued a pronouncement[25] requiring intangibles acquired from others to be recorded as assets and amortized using the straight-line method unless some other method was more appropriate. The Opinion went on to state that the cost of developing intangibles that are not specifically identifiable should be expensed as incurred. The issue of how to account for identifiable internally developed intangibles is not addressed, and it is questionable whether computer software should be classified as intangible in any event, since the courts seem unable to agree on the tangibility of software.

On August 31, 1984, the Financial Accounting Standards Board issued an Exposure Draft, entitled "Accounting for the Costs of Computer Software to be Sold, Leased, or Otherwise Marketed", but this Exposure Draft does not address the issue of how to account for software that is intended for internal use. Furthermore, the Exposure Draft, in its present form, has drawn much opposition from the accounting and software manufacturing communities. (See Note at the end of Chapter Seven for a full account of the Hearings on this Exposure Draft.) As this thesis was going through final

typing, the Financial Accounting Standards Board issued Statement No. 86, entitled "Accounting for the Costs of Computer Software to Be Sold, Leased, or Otherwise Marketed" (August, 1985). This final Statement differs only in minor detail from the Exposure Draft.

The Stages of Software Development

Software development goes through a series of stages. The initial stage is the feasibility stage, the stage at which it is determined whether going forward with further developments is likely to be worthwhile. A certain amount of conceptual design also occurs at this stage. If the "go forward" decision is made, the next step in the software product life cycle is detail design, which takes product function, feature and technical requirements to their most detailed, logical form. Some coding (program writing) might occur at this stage as well, but most coding takes place after a substantial portion fo the detail design phase has been completed, at least in draft stage. Coding involves writing a series of detailed instructions that will carry out the requirements outlined in the detail program design. The next stage is testing, which determines whether the coding lives up to specifications.

After testing has been successfully completed the product is ready to use or market to others. For some software products, additional phases lie in the future. Much software goes through a more or less continuous maintenance phase, in which changes, additions and corrections are made to the software, either to correct errors or to update the software. Enhancements are much like maintenance except that enhancements are substantial improvements to existing products which tend to extend the product's life or significantly improve its marketability. Enhancements generally involve an alteration in the product's design.

Present accounting rules (FASB No. 2) require that research and development costs (R&D) be expensed as incurred, and this pronouncement has drawn much attention, because the exact cut-off point between R&D and post-R&D expenditures cannot be agreed upon by the accounting profession or the software industry. Some view the R&D expenditures as encompassing feasibility, conceptual design and detail design costs. Others view the R&D expenditures as including only feasibility and conceptual design, with the result that detail costs may qualify for capitalization treatment.

## DEFICIENCIES IN CURRENT PRONOUNCEMENTS

### FASB Statement No. 2

FASB's Statement on research and development[26] provides as much ambiguity as it does guidance. Paragraph 8(a) defines research as:

> "...planned search or critical investigation aimed at discovery of new knowledge with the hope that such knowledge will be useful in developing a new product or service or a new process or technique or in bringing about a significant improvement to an existing product or process."

Research is an activity that occurs early in the software construction process, and although FASB Statement No. 2 requires that research expenditures be charged to expense as incurred, there is little guidance regarding which activities should be classified as research, and which should be classified as development.

Paragraph 8(b) defines development as

> "...the translation of research findings or other knowledge into a plan or design for a new product or process or for a significant improvement to an

existing product or process whether intended for sale or use. It includes the conceptual formulation, design, and testing of product alternatives, construction of prototypes, and operation of pilot plants. It does not include routine or periodic alterations to existing products, production lines, manufacturing processes, and other on-going operations even though those alterations may represent improvements and it does not include market research or market testing activities."

This definition of development can be applied to software accounting in two different ways. It could be interpreted to mean that the development phase does not end until software construction is essentially complete, because successful completion is uncertain until the development process is nearly complete. For the development phase to end it is necessary to have a working prototype. Lastly, the fact that design modifications are needed throughout the construction phase is evidence that development occurs through that phase.

Another interpretation could be that the development phase has essentially been completed before the construction phase begins, and any design modifications that occur during construction are minor in nature, and are not part of the

development phase. The formulation, design and product testing activities occur prior to the construction phase. In fact, there must be a single product design before construction can commence, and although testing occurs during the construction phase, the testing at that stage involves the product's operation rather than the testing of alternative products. Furthermore, the software construction process does not culminate in the production of a prototype or the operation of a pilot plant, so these guidelines are irrelevant for purposes of determining when the development phase ends and the production phase begins. The key point for determining when development has ended should be the establishment of technological feasibility instead.

Paragraph 31 states:

> "...Computer software is developed for many and diverse uses. Accordingly, in each case the nature of the activity for which the software is being developed should be considered in relation to the guidelines in paragraphs 8-10 to determine whether software costs should be included or excluded. For example, efforts to develop a new or higher level of computer software capability intended for sale (but not under a contractual arrangement) would be a research and development activity...".

The term "new or higher level of computer software capability" can be interpreted in several ways. If "new" is interpreted in the technological sense, most software would be excluded, as most software is developed using existing rather than new technology. "New" could also refer to whether the product is new in the company sense, even though developed with existing technology. "New" could also be interpreted to mean new in the market sense. For example, the first company to develop and market a payroll program incurs development costs, but companies that later on develop a similar product do not incur development costs.

The term "efforts to develop" could also be interpreted in at least two ways. It could be interpreted to include the whole construction process, which would place all construction expenditures in the development phase. Or it could be interpreted to mean that "efforts to develop" cease prior to the construction phase. These two interpretations lead to opposite results, as construction expenditures would be classified as development costs calling for expense treatment in the first instance, and such expenditures would be nonresearch and development costs in the second instance, and might call for capitalization treatment instead.

Paragraph 9 of FASB Statement No. 2 provides several examples of activities that could be considered research and development expenditures. These are:

(a) Laboratory research aimed at discovery of new knowledge.

(b) Searching for applications of new research findings or other knowledge.

(c) Conceptual formulation and design of possible product or process alternatives.

(d) Testing in search for or evaluation of product or process alternatives.

(e) Modification of the formulation or design of a product or process.

(f) Design, construction, and testing of pre-production prototypes and models.

(g) Design of tools, jigs, molds, and dies involving new technology.

(h) Design, construction, and operation of a pilot plant that is not of a scale economically feasible to the enterprise for commercial production.

(i) Engineering activity required to advance the design of a product to the point that it meets specific functional and economic requirements and is ready for manufacture.

The first four activities generally occur prior to the construction phase. The fifth example, "modification of the formulation or design of a product or process," can occur throughout the process, but occurs only to a minimal degree once the construction process begins. As was previously mentioned, design modifications can be viewed as either occurring as part of the development phase or as part of the construction phase after development is completed.

Examples (f) through (h) are viewed by some as not being applicable to software accounting. The end product is not a prototype, but rather is the product itself. Others view the prototype as being the end product itself in the case of software, which would place the entire software construction process within the definition of research and development and, therefore, subject to expense treatment.

The last example relates to engineering activity. One view holds that manufacturing is merely the duplication of the program once the program is ready to market, and that all activity occurring prior to this point is research and

development. Others view all engineering activity as occurring prior to construction.

Paragraph 10 lists examples of activities that typically would be excluded from research and development. These activities include:

(a) Engineering follow-through in an early phase of commercial production.

(b) Quality control during commercial production including routine testing of products.

(c) Trouble-shooting in connection with break-downs during commercial production.

(d) Routine, on-going efforts to refine, enrich, or otherwise improve upon the qualities of an existing product.

(e) Adaptation of an existing capability to a particular requirement or customer's need as part of a continuing commercial activity.

(f) Seasonal or other periodic design changes to existing products.

(g) Routine design of tools, jigs, molds and dies.

(h) Activity, including design and construction engineering, related to the construction, relocation, rearrangement, or start-up of facilities or equipment other than (1) pilot plants . . . and (2) facilities or equipment whose sole use is for a particular research and development project . . . .

(i) Legal work in connection with patent applications or litigation, and the sale or licensing of patents.

The first three examples are subject to several interpretations. These activities could be viewed as occurring only after sales have commenced, and that similar activities that occur during construction are part of development. Another view is that these activities constitute construction and post construction activities, which is a further indication that construction costs should not be considered part of development.

FASB Interpretation No. 6

Another FASB pronouncement states that:

"...costs, including those incurred for programming and testing software, are research and development

costs when incurred in the search for or the evaluation of product or process alternatives or in the design of a pre-production model."[27]

The phrase "search for or the evaluation of product or process alternatives" is subject to varying interpretations, as was previously mentioned, depending on whether development is regarded as being virtually complete at the beginning of construction or at the end. The term "preproduction model" is not defined and its meaning is not clear as applied to software. The preproduction model could be interpreted to mean the same thing as a prototype, and all costs incurred prior to the completion of the prototype could be viewed as research and development costs. Another view is that preproduction models are not made for software, although systems makeups or product simulators are sometimes made prior to construction.

This pronouncement also states that:

"...costs for programming and testing are not research and development costs when incurred, for example, in routine or other on-going efforts to improve an existing product or adapt a product to a particular requirement or customer's need."[28]

This statement could be interpreted to mean that programming and testing costs are not research and development expenditures only when they are incurred to improve an existing product or adapt a product to a particular requirement or customer's need. Or it could be interpreted less restrictively to exclude programming and testing costs from classification as research and development for activities other than those given in the example. Furthermore, it could be argued that zeroing in on the costs associated with product improvement or adaptation misses the point entirely, and that the issue to be addressed should be accounting for construction costs. Lastly, one could conclude by a literal reading of the Interpretation that all enhancement costs should be classified as nonresearch and development. However, it could be argued that such a view is not reasonable. The process involved in producing enhancements to an existing product is essentially the same as that for a new product, and some of the costs involved in the construction of a new product are research and development costs.

Technical Bulletin No. 79-2

This pronouncement states that:

"...all costs incurred in producing a given software product or process are not necessarily research

and development costs. However, a determination that software production costs are not research and development costs does not necessarily mean that they would be inventoriable or deferrable to future operations. Those decisions can only be made in light of all of the facts and circumstances surrounding the particular situation."[29]

From reading this pronouncement one can quickly conclude that very little guidance, if any, is being provided. The issue of which costs should be classified as research and development is not addressed. Although there is a hint that certain costs may be deferrable or inventoriable under certain circumstances, there is no suggestion elaborating on when such circumstances might arise.

## RELATED PRONOUNCEMENTS

Another approach might lie through a consideration of generally accepted accounting practicesin industries which in their technology or structure might seem not dissimilar to the computer software industry. Such practices, together with their supporting institutional or legal pronouncements, might offer a framework within which detailed recommendations for software accounting could be developed.

## The Record and Music Industry

The argument can be made that the cost of producing a record master is similar to the cost of producing a computer program. In both cases:

1. the majority of the product's value is the result of the labor that is expended rather than the material that is used;
2. logical patterns must be developed (coding or music, either in written or nonwritten form) and transferred onto a physical medium such as a record, tape or disk (although this is not necessarily the case for a computer program, which may be input directly into the computer);
3. the value of the finished product far exceeds the value of the material upon which the coding or music is recorded;
4. both records and computer programs developed for sale have estimated economic lives and projected income streams that are difficult but not impossible to predict.

The National Commission on New Technological Uses of Copyrighted Works stated that:

> "Both recorded music and computer programs are sets of information in a form which, when passed over a magnetized head, cause minute currents to flow in such a way that desired physical work is accomplished."[30]

On the other hand, it can also be argued that records are of a different nature than computer programs that are recorded on disks or tapes.[31] For example, when information is transferred from a tape into the computer, the tape is no longer of any value to the user. In many cases, the tape is not even retained by the user. It may be discarded or returned. The information on the tape, unlike a phonograph record, is not complete and ready to be used at the time of its purchase. It must be translated into a language that is understood by the computer.

Secondly, a computer tape or disk is not necessary to transmit information. Such information can also be sent over telephone wires or by satellite, or may even be programmed directly by the originator of the program.

In late 1981, the Financial Accounting Standards Board issued a Statement that permits the capitalization of a record master in instances where past performance and current popularity of the artist provides a sound basis for estimating that the cost will be recovered from future sales.

> "The portion of the cost of a record master borne by the record company shall be reported as an asset if the past performance and current popularity of the artist provides a sound basis for estimating that the cost will be recovered from future sales. Otherwise, that cost shall be charged to expense. The amount recognized as an asset shall be amortized over the estimated life of the recorded performance using a method that reasonably relates the amount to the net revenue expected to be realized."[32]

That same Statement goes on to define record master as:

> "The master tape resulting from the performance of the artist. It is used to produce molds for commercial record production and other tapes for use

in making cartridges, cassettes, and reel tapes. The costs of producing a record master include (a) the cost of the musical talent (musicians, vocal background, and arrangements); (b) the cost of the technical talent for engineering, directing, and mixing; (c) costs for the use of the equipment to record and produce the master; and (d) studio facility charges. . ."[33]

In its comment letter to the Exposure Draft that eventually became Statement No. 50, Coopers & Lybrand suggested that the language of the Statement be changed to specifically include music publishers.[34] Similar suggestions were made by other respondents,[35] and to also include record producers and songwriters.[36]

Motion Picture Films

Another Statement that might be related to computer software costs is FASB Statement No. 53, "Financial Reporting by Producers and Distributors of Motion Picture Films,"[37] which allows the capitalization of film production costs. This Statement requires that film production costs be capitalized as film cost inventory and be amortized using the individual-film-forecast-computation method[38] or the periodic-table-computation method.[39] The individual-film-forecast-

computation method amortizes costs in the ratio of current gross revenues to anticipated total gross revenues, with adjustment for periodic changes in estimate.[40] The periodic-table-computation method amortizes film costs using the historic revenue patterns of a large group of films.[41]

The analogy of motion picture films to software has also been made in several court cases, and several court cases dealing with sales, use, property or federal taxation of motion picture films or master negatives have been cited by courts hearing software tax issues.[42]

## Preliminary Conclusions and Relevance

Although software has many similarities and differences with both film-making and the record industry, it appears that the similarities substantively outweigh the differences. In all cases, the value of the finished product is primarily attributable to the labor that was expended to bring the product into existence rather than the amount of material that went into the manufacture of the product. It is the recorded logical patterns that have value, not the material that contains those patterns. All three products have projected economic lives and income streams that could conceivably exceed one accounting period, which would seem to make capitalization prudent. The fact that the medium on which

the program is stored (disk, tape, etc.) may be discarded may be offered as further evidence that the value is in the information rather than the physical medium being used to store the information.

Because the manufacture of computer software has so much in common with the manufacture of records and films, it would seem logical that the accounting treatment for all three items should be similar in the interest of consistency. In fact, justifying a different treatment for software than for movies and records would seem to be difficult indeed. Record and film masters perform the same function as the software product that is coded, tested and debugged. Each is used to produce copies for sale or use. But the issue is more complex than this, as we shall see below.

## Research and Development Arrangements

Another FASB Statement[43] addresses the topic of research and development arrangements. During the course of several interviews conducted as part of this research project, it was pointed out that some software vending companies enter into research and development arrangements so that they can treat costs that would otherwise be expensed as assets instead. These arrangements may be structured so that a separate entity undertakes the task of constructing software

that would otherwise be constructed internally, and then sells the finished software product to the arranging firm, which then promptly records the software as an asset. Had the software been constructed internally instead, there would be pressure to expense the construction cost as research and development. The survey that was mailed to software vendors bore this theory out to a limited extent, although the responses revealed that a very small percentage of software vendors participate in research and development arrangements, and those that do have valid business reasons for doing so apart from the beneficial financial statement effect.[44]

## SOFTWARE COSTS: SHOULD THEY BE CAPITALIZED OR EXPENSED?

Prior to June, 1969, when IBM unbundled, this question was a non-issue. Software costs were included in the price of the hardware and were amortized over the useful life of the hardware. After IBM began stating their software prices separately from their hardware prices, and as firms began to develop their own software, this question began to be raised with increasing frequency. Over the past two decades, software costs have become an increasingly important expenditure in most corporate budgets. While it was easy to expense relatively minor software costs in the past, for reasons of

materiality, it has become increasingly difficult to state emphatically that software expenditures are immaterial when they continue to increase every year.[45]

FASB Concepts Statement No. 3, defines assets as:

> "...probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events."

The Statement goes on to say that:

> "An asset has three essential characteristics: (a) it embodies a probable future benefit that involves a capacity, singly or in combination with other assets, to contribute directly or indirectly to future net cash inflows, (b) a particular enterprise can obtain the benefit and control others' access to it, and (c) the transaction or other event giving rise to the enterprise's right to or control of the benefit has already occurred."

Expenses, on the other hand, have doubtful future economic benefit (to carry the FASB reasoning one step further).

From these criteria, the answer seems simple. Software

that has probable future economic benefit should be recorded as an asset and amortized over its estimated economic life. Software having doubtful future economic benefit should be expensed. Unfortunately, the answer is not quite that simple. Some accountants argue for capitalization[46] while others continue to argue for expense treatment.[47] Several articles have addressed the topic in recent years,[48] and it appears that the issue will continue to be in the news for the next few years. The AICPA has formed a task force to study the issue,[49] and the Securities and Exchange Commission has imposed a moratorium on the capitalization of certain software costs.[50]

## The Controversy

The controversy, simply stated, is deciding whether software costs should be classified as assets or expenses. However, the question is more than just philosophical. The choice chosen can affect a company's earnings and its ability to raise capital. There are at least 4,000 companies in the United States that construct software for sale. For all of these companies, software expenditures are a significant percentage of net income, and choosing to classify software expenditures as assets or expenses can make the difference between making a profit or incurring a loss. One public

company that reported a profit of $2.2 million in 1981 would have had a loss of $1 million that year if certain software expenditures had been expensed instead of capitalized. In 1982, the reported $2.5 million profit would have been a $4 million loss.[51] There is some evidence to suggest that accounting policy can affect expansion[52] and the ability to raise capital.[53] The interviews conducted in the course of this study and the questionnaire responses add further support to these contentions.

Question No. 18 in the questionnaire that was sent to software vending company executives (see Chapter 3) asked for an estimate of the reduction in their company's net income that would result from expensing rather than capitalizing software costs. Answers revealed that the vast majority of private (69.4%) and public companies (84.3%) would have a less than 5 percent reduction in net income if software costs that are now being capitalized would have been expensed instead. This does not mean that software expenditures are immaterial for the vast majority of software companies, but rather that many firms are presently expensing rather than capitalizing most or all of their software costs anyway. Even if this factor is taken into consideration, 30.6 percent of private companies and 15.7 percent of public companies would have a reduction in

net income of at least 5 percent, which may be considered a material reduction. If materiality is defined as a 10 percent reduction in net income, then the percentages for private and public companies would be 22.2 percent and 15.7 percent, respectively. It is resonable to anticipate that the controversy is of significant potential importance to all software vendors, and to many if not all software users, especially those who develop their own.

The Catalyst

If there is one single event which caused the software accounting issue to come to life, it was the issuance by the Association of Data Processing Service Organizations (ADAPSO) of its Exposure Draft on software accounting[54] in April, 1982. This Exposure Draft set down clear guidelines for accounting for software costs and revenues. Its issuance caused the AICPA to form a task force to study the issue. The Financial Accounting Standards Board (FASB) has been designated by the Securities and Exchange Commission (SEC) to be the sole promulgator of financial accounting standards. As a preliminary step, the AICPA forms task forces to study specific issues and make recommendations to the FASB. When ADAPSO issued its Exposure Draft, this move was seen by the accounting community in general and by the AICPA

and FASB in particular to be an encroachment on the FASB's role as sole setter of accounting standards.

Role of the NAA

Prior to obtaining employment with the National Association of Accountants (NAA), I was a member of the faculty of the School of Professional Accountancy, C.W. Post Center, Long Island University. When I accepted a limited term appointment as Manager, Accounting Practices for the NAA, it was with the understanding that I could conduct some of my PhD research during normal working hours and that the NAA would support my research efforts.

Shortly after joining the NAA, the issue of how to account for software costs became a "hot" issue. When NAA members (NAA has approximately 97,000 members) called to ask for advice on accounting issues, one of the most frequently asked questions was how to account for software costs. By mutual agreement it was decided that I conduct research on software accounting, since nothing presently existed on this topic. The NAA paid for all costs associated with the printing and mailing of the questionnaire used in this study, and allowed me to conduct the research as I saw fit. The review panel used to evaluate the questionnaire drafts partially consisted of the memebers of NAA's Mananagement Accounting Practices Committee, its subcommittee on MAP

Statement Promulgation and some of its chapter presidents. When AICPA's software task force was being formed, the NAA appointed me to be one of its representatives.

Methodology

The methodology for this study consisted of the following stages:

1. Identify data suppliers.

2. Devise fact collection experiments.

3. Collate collected data.

4. Form a body of first interpretation, taking case law (tax), existing opinions and regulations into account, and

5. Formulate a set of recommendations, which were

6. Tested by AICPA's Software Task Force and NAA's Management Accounting Practices Committee (see Appendix M for a list of members) by determining what they think of the precepts.

7. The question then asked was, "Were their views based on principle or expediency?"

Case law and regulations were studied in depth and are reported upon in Part III and Appendix C of this thesis.

## Review of Literature

A comprehensive review of the literature was completed to determine the extent of research previously undertaken. Literature on the financial accounting aspects of software accounting was found to be practically nonexistent. FASB Statement No. 2, "Accounting for Research and Development Costs,"[55] touches on the issue, as do FASB Interpretation No. 6, "Applicability of FASB Statement No. 2 to Computer Software,"[56] and FASB Technical Bulletin 79-2, "Computer Software Costs."[57] The Association of Data Processing Service Organizations also had a few relevant publications.[58] Only one article of any substance was in print at the time the present research was initiated.[59] Literature on the tax aspects of software was more readily available.[60] A number of court cases dealing with sales, use, property and investment tax credit have also been decided. (See Part III and Appendix C.)

## Interviews

Upon completion of the review of literature, a series of interviews were conducted with people who were knowledgeable in various aspects of software accounting. Telephone interviews were conducted with twenty-two individuals representing several facets of the software industry. Eighteen additional individuals representing seven software vendors and internal users were interviewed personally on company premises.

The interviews led me to believe that, in many cases, a company's software accounting policy was based on expediency rather than principled reasoning. A number of new questions were raised in my own mind as a result of these interviews. I became aware that the accounting policy for internally constructed software was often different from the policy for purchased software, and I constructed a number of questions in the vendor and user questionnaires to find out more about this point. I also learned that software expenditures were not always slotted in the same section of the balance sheet. Some companies included software costs in the "property, plant and equipment" section; others placed these costs in the "other asset" or "intangibles" section. Some companies listed software costs separately and others did not.

Companies that capitalized certain costs of constructed software did not seem to capitalize the same costs. Some companies capitalized only coding and testing, while others also capitalized detail design costs. Reasons given for either capitalizing or expensing software sometimes seemed to be based on expediency rather than accounting principles. Some interviewees seemed to think that they were required to use the same accounting policy for financial statement purposes that they use for the tax return, which is not at all true, so some decisions seemed to be based on erroneous information.

The interviews also alerted me to the fact that some software vendors feel strongly that the inability to capitalize software costs adversely affects their ability to raise capital and expand. This view was confirmed in the mail questionnaire (Chapter 3) and was further tested in the bank lending officer questionnaires (Chapters 9, 10 and 11; Appendices F, H, I, J and K). The question was also raised as to the extent that companies engage in R&D partnerships in order to capitalize software costs that would otherwise be expensed. Responses to the questionnaire (Chapter 3) revealed that this practice was not nearly as widespread as some of the interviewees led me to initially believe.

The interviews also alerted me to the federal and state tax aspects of software, and revealed that there is a great deal of confusion in this area, partly because the people being interviewed, controllers for the most part, were not tax specialists, and partly because the area is so complex, confusing, unclear and constantly changing. Federal treatment is unclear, and companies do not seem to be applying the federal tax law consistently when it comes to software expenditures. Some companies apply the federal and state tax law aggressively and others are extremely conservative. The interviews pointed in the direction that most software tax litigation at the state level is being generated in California, and this preliminary view was confirmed by the questionnaire responses (Chapter 3). Another preliminary view raised during the interviews and confirmed by the questionnaire responses was that companies may classify software as tangible for some purposes and intangible for others. Software may be classified as intangible for sales, use and property tax purposes because such classification will reduce a company's tax burden. Software may be classified as tangible for federal tax purposes for the same reason.

Expensing software costs on the financial statements reduces net income in the year the expenditure is recorded, so there is an advantage to capitalizing such costs because

expenses are reduced, in the first year at least, by capitalizing. However, there is an advantage to expensing rather than capitalizing for tax purposes because expensing allows a company to take a larger tax deduction in the year the expenditure is recorded. Tax treatment and financial statement treatment do not have to be consistent, so a company is perfectly free to capitalize for financial statement purposes and expense for tax purposes, but most companies have a consistent policy, perhaps for reasons of expediency, or perhaps because they do not know that their tax and financial statement policies need not be consistent. The interviews revealed that both of the two above-mentioned reasons were given by accounting executives who were assumed to be knowledgeable in their field.

The interviews raised a number of preliminary questions, which were then written down in draft form and given to the review panel for comment. The questions that eventually emerged from the panel were deemed to be relevant to practice, important in theory, found relevant by professional opinion and found material enough to be the ground of legal enquiry and testing.

## The Review Panel

Upon completion of the interviews, it became apparent that more empirical data needed to be gathered. A list of topics and specific questions was then written and sent to a review panel for comment using a modified version of the Delphi technique. Upon receiving panel member comments, a revised list of proposed questions was written and sent to panel members for further comment. This process was repeated several times until it was felt that further mailings to panel members would no longer be of significant value.

Panel members were selected in several ways. All members of the National Association of Accountants' Management Accounting Practices Committee were included, as were members of the NAA Subcommittee on MAP Statement Promulgation. Solicitation for members was also made in Management Accounting and Association Leader, NAA publications having a monthly circulation of 97,000 and 10,000 copies, respectively. Letters were also sent to 371 NAA chapter presidents requesting them to announce the search for panel members at their next chapter meeting. Some of the people who participated in the interviews also agreed to serve on the panel, as did members of AICPA's Task Force on Accounting for the Development and Sale of Computer Software. The

panel that reviewed the software vendor questionnaire was composed of 57 people. The internal user questionnaire was reviewed by 47 people.

## Mail Surveys of Software Vendors and Users

The sample for the vendor questionnaire was drawn from thirty known public companies and 368 other software vendors, some of which were public and some privately held. The latter group was selected randomly from Data Sources (Summer, 1982) and the 1982 Data Decisions Software Vendor Directory. All selected firms had annual revenues in excess of $5 million, although some earnings could have been derived from non-software sources. The questionnaire was accompanied by a cover letter addressed to the chief financial officer. A self-addressed prepaid envelope was also enclosed. Eighty-eight usable responses were received, for a response rate of 22.1 percent. A summary of findings is included in Chapter 3. The questionnaire used in this survey is reproduced in Appendix F.

The sample for the internal user questionnaire was randomly drawn from the Fortune 1000 and specialty lists. Four hundred fifty questionnaires, cover letters addressed to the controller, and prepaid envelopes were mailed. There were 216 usable responses, for a response rate of 48 percent. A summary of findings for this survey is in Chapter 6. The

questionnaire used in this survey is reproduced in Appendix G.

Computer Surveys

In addition to the mail questionnaire surveys and personal interviews that were conducted as part of the present study, a search of software vendor and user accounting policies was made using the NAARS data base.[61] A summary of the software cost and revenue recognition policies for more than fifty publicly traded companies in the software industry is included in Chapter 2.

A second survey using NAARS searched the financial statement footnotes of 4,197 companies for fiscal 1981-82 and 3,104 companies for fiscal 1982-83 for mention of software accounting policy. The software industry firms that were included in the other NAARS search were excluded. The summary in Chapter 5 includes only software user companies. One hundred twenty-five companies listed on NAARS had the word "software" listed in their accounting policy footnote. Some companies appeared twice, once for each fiscal year searched. Some firms were included in the software industry search, and so are excluded from this summary. Other firms mentioned software in a context that was not relevant for purposes of this study. Policies for the remaining firms were included in Chapter 5.[62]

## Other Mail Surveys

Several surveys were conducted to determine the effect that software accounting policy has on bank lending decisions and stock price. The first commercial lending officer survey consisted of two questionnaires and related financial data that were mailed to two separate groups of commercial lending officers,[63] chosen from banks having at least $500 million in assets. Data for Campbell Corporation, a company that capitalizes software costs with net income of $2,552,107, $2,213,154 and $903,131 for 1982, 1981 and 1980, respectively, was sent to 174 commercial lending officers. Campbell Corporation is a real, publicly held software company. (Comserv) The financial data sent was authentic. Only pany name was changed. This data is reproduced in Appendix K.

Data for Edwards Corporation was sent to 174 other commercial lending officers. The only difference between Edwards and Campbell was that Edwards expenses all software costs. Edwards had a $2,103,000 net loss in 1982 and net income of $498,000 and $301,000 in 1981 and 1980, respectively.

Twenty responses were received for Campbell and thirty for Edwards. Responses to the individual questions are sum-

marized in Chapter 9. The questionnaire used in this survey is reproduced in Appendix H.

A second survey was sent to 1,002 commercial lending officers, obtained randomly from a population of 5,700. The list was purchased from a company that sells mailing lists. In this survey, financial data for both Campbell and Edwards were sent to the same lending officers.[64] Accounts receivable aging schedules and a listing of certain key financial ratios for both companies were also included in the packet of materials.[65] The results of the second lending officer survey are reported in Chapter 10. The questionnaire used in this survey is reproduced in Appendix I.

A third survey was sent to 803 financial analysts in order to determine whether software accounting policy has an effect of stock price.[66] The results of this survey are reported in Chapter 11. The questionnaire used in this survey is reproduced in Appendix J.

A fourth survey was mailed to a number of accounting organizations around the world to determine whether their countries had any particular software accounting policy. The results of that survey and a list of the organizations contacted are contained in Appendix L.

## AUTHOR'S VIEWS

Drawing on the recommendations of received theory, the precepts (such as they are) of professional opinion and the precedents set by the overstudy of relevant case law, I formed the following tentative views of a model of software accounting.

1. Most software that is purchased or internally constructed does not fit the definition of research and development. Most software is constructed from existing technology using existing coding methods, and any research and development that occurs is at the early stages prior to construction. Software is beyond the development stage when technological feasibility is established.

The interviews conducted in conjunction with this study and the questionnaire survey results indicate that many companies automatically assume that internally constructed software falls within the definition of research and development, and is therefore expensed. In the author's opinion, this view is incorrect. Each software project should be evaluated on its own merits and classified accordingly.

Expenditures incurred for detail design, coding and testing are incurred after the research and development phase of the software product life cycle has been completed.

Responses from many companies indicate that software is expensed for reasons of expediency rather than principle, although lip service is sometimes paid to principle. In cases where cost is not material, such misclassification of cost can be ignored. But for many companies, software expenditures are material in amount, and where this is the case, the costs should be classified properly.

2. The accounting treatment for purchased software should be the same as that for comparable internally constructed software. If a company plans to use a payroll program or accounts receivable program for the next five years, the cost of obtaining that program should be amortized over five years, regardless of whether the software was purchased or internally constructed.

The interviews and questionnaire responses indicate that present practice for most companies calls for the expensing of internally constructed software and the capitalization of purchased software. The usual reasons for this practice are either that it is easier to determine the cost of purchased software, or that a purchased software product has a better chance of having future economic benefit because it has already been extensively tested and debugged. In the author's opinion, these reasons are not sufficient. Just because the cost of a purchased program is easier to

determine is not sufficient reason to expense the costs of internally constructing comparable software. And once a project's feasibility has been determined, the risk of failure is small enough to warrant capitalization treatment. Furthermore, the production costs of motion picture films and records are already being capitalized, and the production process for software is similar in many ways to that for records and films.

3. The cost of internally constructed software can be broken down into the following six categories:

a. feasibility costs

b. conceptual design costs

c. detail design costs

d. coding costs

e. testing costs

f. maintenance costs

In cases where the finished software product is expected to have future economic benefit, the costs that are incurred for detail design, coding and testing ashould be capitalized and amortized over the expected period of benefit. Pre-design costs, such as feasibility and

conceptual design costs, should be expensed, as should maintenance costs, as these costs have doubtful future economic benefit, and more nearly resemble period costs than capitalizable costs.

4. The straight-line method is an acceptable method of amortization for intangible assets. In cases where software is classified as intangible, this method can be used.

For software that is developed for sale, at least two other methods may also be considered. The period-table-computation method, which is sometimes used to amortize motion picture film costs, can also be used to amortize software intended for sale.

This method amortizes software costs prepared from historic revenue patterns of a large group of previously marketed software products. Although that revenue pattern is assumed to provide a reasonable guide to the experience of succeeding groups of software products produced and distributed under similar conditions, these tables should not be used for a software product that is expected to have a significantly different revenue pattern from those products which were included in the table. The periodic tables should be reviewed regularly and updated whenever revenue patterns change significantly.

Another acceptable method of amortization is the individual-software-forecast-computation method, a variation of which is used to amortize motion picture film production costs. This method may be illustrated by the following example:

Assume that a certain software product cost $18,000,000 to develop and is expected to generate revenues of $50,000,000 over its useful economic life. By the end of the second year, the amount of total anticipated revenues is reduced to $30,000,000 due to lagging sales. Actual revenue received in each of the first three years is:

| | |
|---|---|
| First year | $10,000,000 |
| Second year | 6,000,000 |
| Third year | 5,000,000 |

Amortization in each of the first three years is computed as follows:

| First Year | | Amount of Amortization |
|---|---|---|
| $\frac{\$10,000,000}{\$50,000,000} \times \$18,000,000$ | = | $3,600,000 |

Second Year

(a) Assuming change in anticipated total revenues from $50,000,000 to $30,000,000:

$$\frac{\$\ 6,000,000}{\$20,000,000} \times \$14,400,000 = \$4,320,000$$

Where:

(1) $6,000,000 is actual revenue in the second year;

(2) $20,000,000 is the adjusted total anticipated remaining revenue ($30,000,000 - $10,000,000); and

(3) $14,400,000 is original cost ($18,000,000) less accumulated amortization ($3,600,000).

(b) Assuming no change in anticipated total revenues:

$$\frac{\$\ 6,000,000}{\$50,000,000} \times \$18,000,000 = \$2,160,000$$

Third Year

(a) Assuming change in anticipated total revenues from $50,000,000 to $30,000,000:

$$\frac{\$\ 5,000,000}{\$20,000,000} \times \$14,400,000 = \underline{\$3,600,000}$$

The adjusted total anticipated remaining revenue ($20,000,000) and adjusted cost ($14,400,000) need not be reduced by the second year actual revenue ($6,000,000), and second year amortization ($4,320,000), respectively, because adjusted total anticipated remaining revenue ($20,000,000) did not change from the second to third year. If the reduction were made, the result would not change.

$$\frac{\$\ 5,000,000}{\$20,000,000 - \$6,000,000} \times (\$14,400,000 - \$4,320,000) = \underline{\$3,600,000}$$

(b) Assuming no change in anticipated total revenues:

$$\frac{\$\ 5,000,000}{\$50,000,000} \times \$18,000,000 = \$1,800,000$$

Although the individual-software-forecast-computation method and the period-table-computation method may be appropriate amortization methods in certain instances, they are not necessarily the only acceptable methods. Other methods that reasonably relate the amount of the revenue expected to be realized to the amount of capitalized expenditures are also acceptable.

5. Software costs meeting the definition of research and development should be expensed as incurred in keeping with FASB Statement No. 2, unless the software has alternative future uses, in which case it should be capitalized and amortized over the period of expected benefit. The alternative future use test does not apply to the internal development of computer software. See FASB Interpretation No. 6, paragraph 8, footnote 2.

6. Software expenditures classified as assets should be included in the "property, plant and equipment" portion of the balance sheet if considered to be tangible property. Intangible software expenditures qualifying as assets should

appear in the "other assets" section of the balance sheet.

7. Software expenditures should not be separately disclosed unless they are material in amount. Software expenses can be considered material if they equal or exceed 5 percent of sales. Software assets can be considered material if they equal or exceed 5 percent of total assets. Disclosure may be by footnote or by separately stating software expenditures in the body of the income statement or balance sheet.

8. When the possibility exists to either acquire hardware and software "bundled" or "unbundled," the following factors should be considered:

a. Amortization -- Software that might otherwise be expensed might be depreciated if combined with hardware costs. Likewise, software that would be capitalized if bundled might qualify for expense treatment if stated separately.

b. Investment Tax Credit -- Software that would not otherwise qualify for the investment tax credit may so qualify if it is bundled with the related hardware. Even if software is acquired separately, the possibility of taking an investment tax credit should be examined.

At least one court has held that the investment tax credit may be taken on unbundled software.

c. Sales/Use Tax -- Bundling hardware and software may increase the amount of sales/use tax a buyer is required to pay. Some states do not tax the sale of software if sold separately from the hardware. Software delivered on cards, disk or magnetic tape might be subject to tax in some states, even though the identical software, if delivered over telephone lines, would not be taxed.

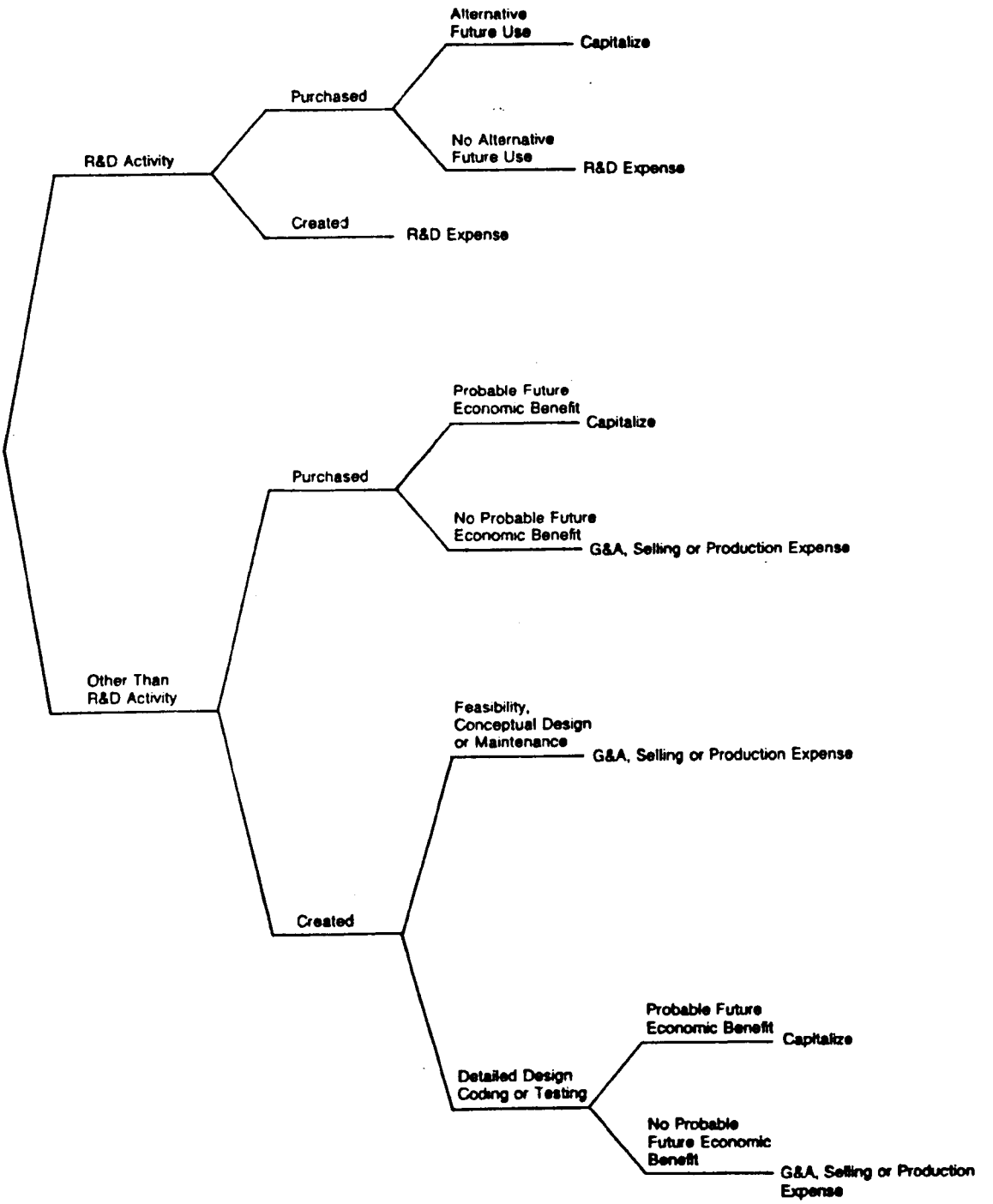
d. Property Tax -- Bundling hardware and software may increase the amount of property tax the owner must pay. Many states levy a property tax on tangible property only. Software is often classified as intangible property if accounted for separately from the hardware.

e. Different Accounting Treatments -- The accounting treatment for financial reporting need not be the same as that used for tax reporting. Software expenditures may be expensed as incurred for tax purposes and capitalized and

amortized for financial reporting purposes and vice versa. If different methods are used, the tax effect of the difference is reflected in the deferred tax account.

In what follows, these views are exposed to empirical tests derived from a study of field practice (Chapters 3 and 6) and a more profound examination of the relevant case law (Chapters 13 and 14 and Appendix C). Further empirical tests of the impact of software accounting on enterprise debt capacity, credit rating and equity appeal are described in Chapters 8, 9, 10 and 11. Although the response rate to enquiries to bankers and credit analysts is well below that necessary to carry out meaningful statistical tests, the results are here reported as hopefully being not without relevant information content albeit of a nonrigorous character.

# ACCOUNTING FOR SOFTWARE



## FOOTNOTES

[1]The decision to "unbundle" was made in part for anti-trust reasons. See Schmedel, "IBM Discloses Plan for Separating Its Computer and Services Prices," Wall Street Journal, June 24, 1969, p. 38; Goetz, "When IBM Unbundled," Computerworld, December 31, 1979/January 7, 1980, p. 35; Goetz, "Unbundling: Will 80's Repeat the 60's?," Computerworld, April 14, 1980, p. 33; John G. Martin, "The Revolt Against the Property Tax on Software: An Unnecessary Conflict Growing Out of Unbundling," 9 Suffolk University Law Review, Fall, 1974, p. 124.

[2]Rev. Proc. 69-21, 1969-2 C.B. 303.

[3]Section 174 of the Internal Revenue Code permits expensing or amortization of research and development costs, at the taxpayer's option.

[4]Rev. Rul. 71-177, 1971-1 C.B. 5.

[5]Rev. Rul. 71-248, 1971-1 C.B. 55.

[6]See "Software Industry Analysis" in Computer Yearbook 98 (1972).

[7]American National Dictionary for Information Processing, American Standards Committee X3 Technical Report 1-77.

[8]Federal Information Processing Standards Publication 11-1, September 30, 1977.

[9]Rev. Proc. 69-21, 1969-2 C.B. 303.

[10]Commerce Union Bank v. Tidwell, 538 S.W.2d 405, 406 (Tenn. 1976) (see Case No. 11, Appendix C); see also, Greyhound Computer Corp. v. State Department of Assessments and Taxation, 271 Md. 674, 320 A.2d 52 (1974) (see Case No. 24, Appendix C).

[11]John W. Bryant and Lance R. Mather, "Property Taxation of Computer Software," 18 New York Law Forum, 69, 62 (1972).

[12]Rev. Rul. 71-177, 1971-1 C.B. 5.

[13]Texas Instruments, Inc. v. United States, 407 F. Supp. 1326 (N.D. Tex. 1976), rev'd. 551 F.2d 599, 39 AFTR2d 77-1383 (5th Cir. 1977). See Case No. 38, Appendix C.

[14]Bullock v. Statistical Tabulating Corp., 549 S.W.2d 166 (Texas 1977); Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976); County of Sacramento v. Assessment Appeals Board, 32 Cal. App.3d 654, 108 Cal. Rptr. 434 (1973); First National Bank of Fort Worth v. Bullock, 584 S.W.2d 548 (Tex. Civ. App. 1979); Janesville Data Center, Inc. v. Wisconsin Department of Revenue, 84 Wis.2d 341, 267 N.W.2d 656 (1978). See Cases 5, 11, 14, 21 and 29, Appendix C.

[15]First National Bank of Springfield v. Department of Revenue, 85 Ill.2d 84, 421 N.E.2d 175 (1981); James v. Tres Computer Systems, Inc., 642 S.W.2d 347 (Mo. 1982); Quotron Systems v. Comptroller, 287 Md. 178, 411 A.2d 439 (1980); So.2d 1160 (1977). See Cases 22, 28, 33 and 37, Appendix C.

[16]District of Columbia v. Universal Computer Associates, Inc., 465 F.2d 615 (D.C. Cir. 1972); Greyhound Computer Corporation v. State Department of Assessments and Taxation, 271 Md. 674, 320 A.2d 52 (1974); Honeywell Information Systems, Inc. v. Maricopa County, 118 Ariz. 171, 575 P.2d 801 (1978). See Cases 18, 24 and 26, Appendix C.

[17]Comptroller of the Treasury v. Equitable Trust Company, 464 A.2d 248 (Md. 1983) held that the sale of software constitutes the sale of tangible personal property subject to the Maryland sales tax. Chittenden Trust Company v. King, 465 A.2d 1100 (Vt. 1983) held that software is tangible and subject to the Vermont use tax. See Cases 9 and 12, Appendix C.

[18]Carl Beasley Ford, Inc. v. Burroughs Corporation, 361 F. Supp. 325 (E.D. Pa. 1973), aff'd. 493 F.2d 1400 (3d Cir. 1974); Chatlos Systems, Inc. v. National Cash Register Corporation, 479 F. Supp. 738 (D.N.J. 1979), 635 F.2d 1081 (1980); Triangle Underwriters, Inc. v. Honeywell, Inc., 457 F. Supp. 765 (E.D. N.Y. 1978), rev'd. on other grounds, 604 F.2d 737 (2d Cir. 1979). See Cases 7, 8 and 39, Appendix C.

[19]F & M Schaefer Corp. v. Electronic Data Systems Corp., 430 F. Supp. 988 (S.D.N.Y. 1977), aff'd. mem. 614 F.2d 1286 (2d Cir. 1979). See Case No. 19, Appendix C.

[20]Computer Sciences Corporation v. Commissioner of Internal Revenue, 63 T.C. 327 (1974). See Case No. 13, Appendix C.

[21]Financial Accounting Standards Board, Statement of Financial Accounting Standards No. 2, "Accounting for Research and Development Costs," (Stamford: FASB, 1974).

[22]Financial Accounting Standards Board, FASB Interpretation No. 6, "Applicability of FASB Statement No. 2 to Computer Software," (Stamford: FASB, 1975).

[23]Financial Accounting Standards Board, Technical Bulletin 79-2, "Computer Software Costs," (Stamford: FASB, 1979).

[24]At least two federal agencies permit the capitalization of software under certain circumstances. See United States General Accounting Office, Illustrative Accounting Procedures for Federal Agencies: Guidelines for Automatic Data Processing Costs, (Federal Government Accounting Pamphlet No. 4, GAO, 1978); also see, Interstate Commerce Commission, Accounting Series Circulation No. 194, September 17, 1982, which is discussed in Motor Freight Controller, December, 1982, p. 14.

[25]Accounting Principles Board, APB Opinion No. 17, "Intangible Assets," (New York: AICPA, 1970).

[26]Financial Accounting Standards Board, Statement of Financial Accounting Standards No. 2, "Accounting for Research and Development Costs," (Stamford: FASB, 1974).

[27]Financial Accounting Standards Board, FASB Interpretation No. 6, "Applicability of FASB Statement No. 2 to Computer Software," (Stamford: FASB, 1975), paragraph 7.

[28]Ibid.

[29]Financial Accounting Standards Board, Technical Bulletin No. 79-2, "Computer Software Costs," (Stamford: FASB, 1979), paragraph 3.

[30]Final Report (1978) p. 10. Also see the last page of the opinion in Comptroller of the Treasury v. Equitable Trust Company, 464 A.2d 248 (Md. 1983). See also, the dissenting opinion in James v. Tres Computer Systems, Inc., 642 S.W.2d 347 (Mo. 1982). See Case Nos. 12 and 28, Appendix C.

[31]See Karl K. Heinzman, "Computer Software: Should It Be Treated As Tangible Property for Ad Valorem Tax?," The Journal of Taxation, September, 1972, pp. 184-186; Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976); District of Columbia v. Universal Computer Associates, Inc., 465 F.2d 615 (D.C. Cir. 1972); James v. Tres Computer Systems, Inc., 642 S.W.2d 347 (Mo. 1982). See Case Nos. 11, 18 and 28, Appendix C.

[32]Financial Accounting Standards Board, FASB Statement No. 50, "Financial Reporting in the Record and Music Industry," (Stamford: FASB, 1981), paragraph 11. Also see, American Institute of Certified Public Accountants, Statement of Position 76-1, "Accounting Practices in the Record and Music Industry," (New York: AICPA, 1976).

[33]FASB Statement No. 50, Appendix.

[34]Coopers & Lybrand, letter to Director of Research and Technical Activities, Financial Accounting Standards Board, dated September 11, 1981.

[35]See New York State Society of Certified Public Accountants, letter to Director of Research and Technical Activities, Financial Accounting Standards Board, dated August 27, 1981 (File Ref: #1063-077); American Institute of Certified Public Accountants, letter to Mr. Michael O. Alexander, Director of Research and Technical Activities, Financial Accounting Standards Board, dated October 15, 1981 (File Ref: #1063-077).

[36]Arthur Andersen & Company, letter to Director of Research and Technical Activities, Financial Accounting Standards Board, dated September 21, 1981; Arthur Young & Company, letter to Michael O. Alexander, Director of Research and Technical Activities, Financial Accounting Standards Board, dated September 21, 1981.

[37](Stamford: FASB, 1981). Also see the following, both by the AICPA: Industry Accounting Guide, "Accounting for Motion Picture Films" (1973) and Statement of Position 79-4, "Accounting for Motion Picture Films" (1979).

[38]Ibid., paragraphs 10 and 11.

[39]Ibid., paragraphs 10 and 13.

[40]Ibid., paragraph 12.

[41]In its comment letter to the Exposure Draft of Statement No 53 (dated August 27, 1981 - File Ref: #1063-074), the New York State Society of Certified Public Accountants recommended that reference to the periodic-table-computation be deleted, because the film industry generally follows the individual film forecast method on a film-by-film basis. The letter also points out that other methods can always be used as long as the result would not be materially different, and any reference to other methods would only add confusion. Arthur Young & Company made a similar comment (letter dated September 21, 1981), as did the Accounting Standards Division of the AICPA (letter dated November 13, 1981). Several respondents to the Exposure Draft also mentioned that reference should be made to interest capitalization costs, FASB Statement No. 34.

Even though the periodic-table-computation method might not be the most widely used method in the film industry, it might find acceptance in the software industry, because a larger variety of product is produced in the latter industry.

[42]See Bing Crosby Productions, Inc. v. United States, 79-1 U.S.T.C. 9150, 588 F.2d 1293 (9th Cir. 1979); Walt Disney Productions v. United States (Disney I), 327 F. Supp. 189 (C.D. Cal. 1971), aff'd. as modified, 480 F.2d 66 (9th Cir. 1973), 32 AFTR2d 73-5094, cert. denied, 415 U.S. 934, 94 S. Ct. 1451, 39 L.Ed.2d 493 (1974); Walt Disney Productions v. United States (Disney III), 549 F.2d 576 (9th Cir. 1977), 39 AFTR2d 77-796; Boswell v. Paramount Television Sales, Inc., 291 Ala. 490, 282 So.2d 892 (1973); Florida Association of Broadcasters v. Kirk, Fla. App. 264 So.2d 437, cert. denied, Fla. 268 So.2d 534 (1972); Crescent Amusement Co. v. Carson, 187 Tenn. 112, 213 S.W.2d 27 (1948); In re Merrill Theatre Corp. Sales and Use Tax, 138 Vt. 397, 415 A.2d 1327 (1980); Mount Mansfield Television, Inc. v. Vermont Commissioner of Taxes, 133 Vt. 284, 336 A.2d 193 (1975); Columbia Pictures Industries, Inc. v. Tax Commissioner, 176 Conn. 604, 410 A.2d 457 (1979); United Artists Corp. v. Taylor, 273 N.Y. 334, N.E.2d 254 (1937); Turner Communications Corp. v. Chilivis, 239 Ga. 91, 236 S.E.2d 251 (1977); Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976); and Michael Todd Co. v. County of Los Angeles, 57 Cal. 2d 684, 21 Cal. Rptr. 604, 371 P.2d 340 (1962).

[43]Financial Accounting Standards Board, FASB Statement No. 68, "Research and Development Arrangements," (Stamford: FASB, 1982).

[44]See Chapter 3.

[45]A spokesman for ITT has revealed that $27.9 million in software development costs were placed on the balance sheet as assets in 1982, compared to earnings of $702.8 million. See Richard L. Hudson, "SEC May Curb Accounting Rule for Software," Wall Street Journal, April 8, 1983, p. 52.

[46]Neil E. Paulsen, "Software Development Costs Should Be Capitalized," Management Accounting, November, 1983, pp. 40-42.

[47]John J. Gannon and David Parkinson, "Software Development Costs Should Be Expensed," Management Accounting, November, 1983, pp. 37-39.

[48]Naomi Adams, "Programming Computer Software Into Financial Statements," Going Concerns, Queens College Accounting Honor Society, October 19, 1983, p. 4; Alex. Brown & Sons, "Industry Accounting Concerns," Computer Services Monthly, August, 1982; Gary W. Burns and D. Scott Peterson, "Accounting for Computer Software," The Journal of Accountancy, April, 1982, pp. 50-51, 53-54, 56, 58; "Expenses, Shmexpenses," Forbes, May 23, 1983, p. 13; Eamonn Fingleton, "Capital Offense," Forbes, January 17, 1983, pp. 100-101; Eamonn Fingleton, "U.S. Laws Hit Hi-Tech," Accountancy Age, April 21, 1983, p. 21; Earl K. Littrell, "Death of an Asset--The R & D Blood Bath," Management Accounting, January, 1981, p. 63; Roger Neal, "Caution for Lotus-Eaters," Forbes, September 26, 1983, pp. 52, 54; Charles Pridemore, "Software: Should Development Costs be Expensed or Capitalized?," Management Accounting, November, 1983, pp. 33-36.

[49]"Task Force of AcSEC Studies Computer Software Accounting," The Journal of Accountancy, June, 1983, p. 9.

[50]Securities and Exchange Commission, "Accounting for Costs of Internally Developing Computer Software for Sale or Lease to Others," 17 C.F.R. Parts 210 and 239; Release Nos. 33-6476; 34-20061; FR-12, File No. S7-968. August 8, 1983. Published in the Federal Register Vol. 48, No. 157, Friday, August 12, 1983, pp. 36566-36571.

[51]Eamonn Fingleton, "Capital Offense," Forbes, January 17, 1983, pp. 100-101. Also see Eamonn Fingleton, "U.S. Laws Hit Hi-Tech," Accountancy Age, April 21, 1983, p. 21; "Expenses, Shmexpenses," Forbes, May 23, 1983, p. 13.

[52]Bertrand Horwitz and Richard Kolodny, "Has the FASB Hurt Small High-Technology Companies?," Harvard Business Review, May/June, 1980, pp. 44, 48, 52.

[53]Abdussalam Ali El-Arabi, "The Effects of Accounting Alternatives on Lending Decisions of Commercial Bankers," Ph.D. dissertation, The Louisiana State University and Agricultural and Mechanical College, 1977; Mostafa El-Maksy, "A Theoretical and Empirical Investigation of the Effects of FASB Statement No. 33 on Lending Decisions," Ph.D. dissertation, City University of New York, 1983; Tribhowan Nath Jain, "A Study of the Effects of Alternative Methods of Accounting for Income Taxes on Term Loan Decisions," Ph.D. dissertation, Michigan State University, 1970.

[54]Association of Data Processing Service Organizations, "Accounting Guidelines for the Computer Services Industry, Exposure Draft, April, 1982.

[55]Stamford: FASB, 1974

[56]Stamford: FASB, 1975

[57]Stamford: FASB, 1979

[58]"Accounting Guidelines for the Computer Services Industry." Exposure Draft, April 1982; also, "Accounting Guidelines for the Computer Services Industry," survey conducted August, 1982, published January, 1983. Both published by the Association of Data Processing Service Organizations.

[59]Gary W. Burns and D. Scott Peterson, "Accounting for Computer Software," The Journal of Accountancy, April, 1982, 50-51, 53-54, 56, 58.

[60]See Michael J. Bayer, "Citizens Financial Corporation v. Kosydar: Data Processing and the Ohio Sales Tax Service Exemption," 6 Capital University Law Review, 1977, 663-672; Robert P. Bigelow, "The Computer and the Tax Collector," 30 Emory Law Journal, Spring, 1981, 357-393; John W. Bryant and Lance R. Mather, "Property Taxation of Computer Software," 18 New York Law Forum, Summer, 1972, 59-75; Matthew A. Case, "Sales and Use Tax of Computer Software -- Is Software Tangible Personal Property?," 27 Wayne Law Review, Summer, 1981, 1503-1536; Robert D. Crockett, "Software Taxation: A Critical Reevaluation of the Notion of Intangibility," Brigham Young University Law Review, 1980 No. 4, 859-879; Data Processing Management Association, Position Statement

on Software Taxation, Data Processing Management Association Position Statement, April, 1982, p. 8; G. Davidson, "Collection of State Sales and Use Tax on Interstate Transfers of Computer Programs," 17 Jurimetrics Journal, Summer, 1977, 286; Roy N. Freed, "A Legal Perspective on Sales Taxation of Software Programs," Taxes, September, 1982, 696-699; Karl K. Heinzman, "Computer Software: Should It Be Treated As Tangible Property For Ad Valorem Tax?," The Journal of Taxation, September, 1972, 184-186; Ronald Mangiacapra, "Computer Software -- Availability of Investment Tax Credits," The Tax Advisor, December, 1978, 729-730; John G. Martin, "The Revolt Against the Property Tax on Software: An Unnecessary Conflict Growing Out of Unbundling," Suffolk University Law Review, Fall, 1974, 118-144; Harold S. Peckron, "Taxation of Computer Hardware and Software," The Tax Executive, October, 1977, 16, 59-77; Debra M. White and Muchael T. Vanecek, "Taxpayer Beware! The Current State of Computer Software Taxation," Taxes, May, 1982, 373-377.

[61]NAARS has financial statement data on more than 4,000 public companies, and is available by subscription from the American Institute of Certified Public Accountants.

[62]Thanks go to Robert Kueppers of Deloitte Haskins and Sells in New York, who provided me with access to the NAARS data base.

[63]A similar methodology was employed by A. A. El-Arabi, "The Effects of Accounting Alternatives on Lending Decisions of Commercial Bankers." Ph.D. dissertation, the Louisiana State University and Agricultural and Mechanical College, 1977. Also see Mostafa M. El-Maksy, "A Theoretical and Empirical Investigation of the Effects of FASB Statement No. 33 on Lending Decisions." Ph.D. dissertation, City University of New York, 1983, where a slightly different methodology was employed.

[64]A similar research methodology was used by Tribhowan Nath Jain, "A Study of the Effects of Alternative Methods of Accounting for Income Taxes on Term Loan Decisions." Ph.D. dissertation, Michigan State University, 1970.

[65]The ratios chosen for inclusion in this list were selected partially based on a study that listed the ratios most frequently used by lending officers. See Mostafa M. El-Maksy, "A Theoretical and Empirical Investigation of the Effects of FASB Statement No. 33 on Lending Decisions." Ph.D. dissertation, City University of New York, 1983, 74-76.

[66]A similar approach was used in Robert E. Jensen's doctoral dissertation at Stanford University. That study investigated relationships between (a) security evaluation and portfolio selection and (b) alternative inventory valuation and depreciation methods in financial reporting. See Robert E. Jensen, "An Experimental Design for Study of Effects of Accounting Variations in Decision Making," Journal of Accounting Research, Autumn, 1966, 224-238.

# CHAPTER TWO

# FOOTNOTE DISCLOSURE OF SOFTWARE ACCOUNTING POLICIES: PUBLIC COMPANIES IN THE COMPUTER SOFTWARE INDUSTRY

## INTRODUCTION

In addition to the mail questionnaire surveys and personal interviews that were conducted as part of this study, a study of footnote disclosure of software accounting policies of software vendor and user companies was also made. This chapter summarizes the findings for software vendors. Chapter 5 summarizes the findings for software user companies.

Information was gathered in several ways. The primary source was the NAARS data base.[1] In some cases, annual reports, 10K's and other Securities and Exchange Commission filings were reviewed. Several telephone calls were also made to selected executives of software vending companies to obtain clarification or additional information.

The information provided in this chapter includes only publicly held companies, since data on privately held companies is nearly impossible to obtain. Information on the

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[1]NAARS has financial statement data on more than 4,000 public companies, and is available by subscription from the American Institute of Certified Public Accountants. Thanks go to Robert Kueppers of Deloitte Haskins & Sells in New York, who provided me with access to the NAARS data base.

56 public companies is arranged alphabetically, and includes information regarding type of product sold, revenue recognition policy and cost recognition policy. Annual revenues, total assets and audit firm are also given. A matrix summarizing the accounting treatment of selected software items is also included, as is a chart summarizing audit firms.

## The Relationship Between Type of Software and Accounting Policy

The footnotes of 56 public companies in the software industry were examined. It is extremely difficult to classify these companies by type of product with any great exactness because of the widely differing levels of disclosure in their published statements. However, Table 2.1 attempts to discover relationships between type of software product and software accounting policy. Some companies have been included more than once if there was an indication that they provided software for more than one classification of customer.

TABLE 2.1

OPERATIONS ANALYSIS

| CO. NO. | FIELD OF OPERATIONS | TYPE OF SOFTWARE | | | ACCOUNTING TREATMENT | | |
|---|---|---|---|---|---|---|---|
| | | SYSTEMS | APPLICATIONS | UNSPECIFIED OR BOTH | PRODUCT ENHANCEMENTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
| MANUFACTURING & INDUSTRY | | | | | | | |
| | High Technology | | | | | | |
| 1 | AGS | X | | | C | | |
| | Transportaiton and Heavy Equipment | | | | | | |
| 16 | Computer Task Group, Inc. | X | X | X | Not Disclosed | | |
| | Oil and Gas | | | | | | |
| 21 | Cook Data Services, Inc. | | X | | E | | E |
| 40 | The MPSI Group, Inc. | | X | | Nominal Capitalization | | |
| 47 | Scientific Software Corp. | | X | | | | E |
| | Space, Defense & Aviation | | | | | | |
| 32 | Intermetrics, Inc. | X | X | X | Not Disclosed | | |
| | Construction | | | | | | |
| 41 | MTX International, Inc. | | | X | C | C | E |

Code

C - Capitalize
E - Expense

TABLE 2.1

OPERATIONS ANALYSIS

| CO. NO. | FIELD OF OPERATIONS | TYPE OF SOFTWARE | | | ACCOUNTING TREATMENT | | |
|---|---|---|---|---|---|---|---|
| | | SYSTEMS | APPLICATIONS | UNSPECIFIED OR BOTH | PRODUCT ENHANCEMENTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
| | Unspecified Manufacturing and Industry | | | | | | |
| 17 | Comserv Corporation | | X | | C | C | C/E |
| 48 | Scientific Systems Services, Inc. | X | X | X | | | E |
| SERVICES | | | | | | | |
| | Real Estate | | | | | | |
| 2 | AMS/Realstar, Inc. | | X | | | | E |
| | Data Processing Services | | | | | | |
| 14 | Computer Data Systems, Inc. | | X | | | C | |
| 20 | The Continuum Company, Inc. | | X | | E | C | E |
| 26 | Dyatron Corporation | | X | | E | C | C/E |
| 30 | Informatics General Corp. | X | X | X | | C | |
| 56 | Wyly Corporation | X | X | | | C | |
| | Financial Services | | | | | | |
| 5 | Anacomp, Inc. | X | | | | C | |
| 10 | Astradyne | X | X | X | | C | |
| 19 | Consco Enterprises, Inc. | | X | | C | | E |
| 24 | DST Systems, Inc. | X | | | E | | E |
| 25 | Data Architects, Inc. | | X | | | C | |

Code

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TABLE 2.1

OPERATIONS ANALYSIS

| | | TYPE OF SOFTWARE | | | ACCOUNTING TREATMENT | | |
|---|---|---|---|---|---|---|---|
| CO. NO. | FIELD OF OPERATIONS | SYSTEMS | APPLICATIONS | UNSPECIFIED OR BOTH | PRODUCT ENHANCEMENTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
| | Financial Services (continued) | | | | | | |
| 28 | Hogan Systems, Inc. | | X | | | C | E |
| 37 | McCormack & Dodge Corp. | | X | | E | | E |
| 45 | Policy Management Systems | | X | | | | E |
| 52 | Sterling Software, Inc. | X | X | X | E | C | E |
| 53 | Systematics, Inc. | X | X | X | E | C | E |
| | Health Care | | | | | | |
| 10 | Astradyne | X | X | X | | C | |
| 12 | BSL Technology | X | | | C/E | | E |
| 15 | Computer Designed Systems, Inc. | X | | | C | C | E |
| 23 | Cycare Systems, Inc. | | X | | E | C | E |
| 49 | Sentry Data, Inc. | X | | | | | E |
| | Legal | | | | | | |
| 27 | Harris & Paulson, Inc. | | X | | C | | E |
| | Retail | | | | | | |
| 40 | The MPSI Group, Inc. | | X | | Nominal Capitalization | | |
| | Non-Profit | | | | | | |
| 39 | Miller Technology | X | X | X | C | | C |
| 54 | Systems & Computer Tech | | X | | Not Disclosed | | |

Code

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TABLE 2.1

OPERATIONS ANALYSIS

| CO. NO. | FIELD OF OPERATIONS | TYPE OF SOFTWARE | | | ACCOUNTING TREATMENT | | |
|---|---|---|---|---|---|---|---|
| | | SYSTEMS | APPLICATIONS | UNSPECIFIED OR BOTH | PRODUCT ENHANCEMENTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
| | Hotels | | | | | | |
| 33 | Lodgistix, Inc. | | X | | E | C | C |
| | UNSPECIFIED | | | | | | |
| 1 | AGS | X | | | C | | |
| 3 | Advanced Computer Techniques | X | X | X | E | C | E |
| 4 | American Software, Inc. | | X | | E | | E |
| 6 | Analysts International | X | X | X | Not Disclosed | | |
| 7 | Apollo Computer, Inc. | X | | | E | | E |
| 8 | Applied Data Research, Inc. | X | X | X | E | C | |
| 9 | ASK Computer Systems, Inc. | | X | | | | E |
| 11 | BPI Systems, Inc. | | X | | | | E |
| 13 | Computer Associates, Int'l. | X | | | E | C | E |
| 14 | Computer Data Systems, Inc. | | X | | | C | |
| 16 | Computer Task Group, Inc. | X | X | X | Not Disclosed | | |
| 18 | Comshare, Incorporated | | X | | | C | E |
| 22 | Cullinet Software | X | X | X | | C | E |
| 29 | Infodata Systems, Inc. | | | X | C | | |
| 30 | Informatics General Corp. | X | X | X | | C | |
| 31 | Integrated Software | | X | | | | E |
| 34 | MacNeal-Schwendler | | | X | E | | E |
| 35 | MSA | | X | | E | C | E |
| 36 | Mathematica, Inc. | X | | | E | | E |
| 38 | Microsoftware Int'l. | | X | | | | E |

Code

C - Capitalize
E - Expense

TABLE 2.1

OPERATIONS ANALYSIS

| CO. NO. | FIELD OF OPERATIONS | TYPE OF SOFTWARE | | | ACCOUNTING TREATMENT | | |
|---|---|---|---|---|---|---|---|
| | | SYSTEMS | APPLICATIONS | UNSPECIFIED OR BOTH | PRODUCT ENHANCEMENTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
| 41 | MTX International, Inc. | | | X | C | C | E |
| 42 | NCA Corporation | | X | | Not Disclosed | | |
| 43 | On-Line Software, Int'l. | X | | | | C | E |
| 44 | Pansophic Systems, Inc. | X | X | X | | C | E |
| 46 | Science Management Corp. | X | | | C | | E |
| 47 | Scientific Software Corp. | | X | | | | E |
| 50 | Softech, Inc. | | X | | | | E |
| 51 | Software AG | X | | | E | C | E |
| 55 | Time Sharing Resources, Inc. | X | X | X | | | E |
| | TOTALS | 32 | 48 | 22 | | | |

Code

C - Capitalize
E - Expense

There seems to be no correlation between the type of software manufactured (systems or applications) and the accounting treatment (capitalization versus expensing). The sample size is small, some companies make both types of software, and the classifications are tentative at best. However, some weak conclusions can be drawn from this imperfect data. Software vendors that provide software to manufacturing and industrial companies have a tendency to capitalize enhancement costs more often than not. Three vendors capitalize such costs, compared to one vendor that expenses. A fifth company nominally capitalizes enhancement costs. Five vendors in this category did not disclose their accounting policy for enhancement costs. Overall, for the 29 companies that revealed their treatment of enhancement costs (See Table 2.5), 34 percent capitalized and 66 percent expensed, so it would appear at first glance that vendors providing software to manufacturing and industrial companies are more likely than average to capitalize enhancement costs. However, this conclusion is somewhat suspect because of the small sample and degree of uncertainty regarding the reliability of the data.

If we accept as valid the conclusion that vendors providing software to manufacturing and industrial companies

tend to capitalize enhancement costs, we must then ask, "Why do these vendors tend to capitalize, when two-thirds of the publicly held companies in this sample expense enhancement costs?" One possible reason is that software made for this type of customer is not subject to the same degree of rapid technological obsolescence that befalls other software. If the software has a longer than average useful life, a vendor may be more apt to capitalize it than if the software has a short or questionable useful life.

A casual glance at the (Table 2.1) column headed "acquired software" reveals that all companies that disclose their treatment of this type of software capitalize it. This revelation is confirmed by Table 2.5. Thus, it appears that the type of customer served bears no relationship to the accounting policy for purchased software.

A comparison of the last column of Table 2.5 with the last column of Table 2.1 reveals that almost all companies (91 percent) expense software construction costs. Comserv capitalizes some construction costs. One of the five vendors that provides software to the data processing service industry capitalizes it. Miller Technology and Lodgistix capitalize construction costs of software provided to the nonprofit sector and the hotel industry, respectively. Again,

**Missing pages are unavailable**

groupings. There is a wealth of anecdotal and casual observation evidence that accounting control systems tend to be more detailed and/or structured in older established manufacturing operations such as engineering, but less well-developed in newer operational areas such as transportation. However, there is similar evidence that accounting control systems in the newer service industries tend to be more flexible, more innovative and more readily changed. We might therefore speculate that software for accounting control systems developed for old manufacturing industry might tend to have a longer life than that directed towards new types of service industry and that this might be reflected in the accounting treatment of software. A visual scan of Table 2.1 did not reveal such an association between field of operation and accounting treatment. A second glance raised the possibility that vendors servicing manufacturing and industrial clients might have a better than average tendency to capitalize enhancement costs, but this conclusion is only tentative.

We also know that accounting systems reflect convenience as well as principle, that asset accounting tends to be more expensive and consuming of resources of human skill and time than expense accounting. We also observe that larger com-

panies tend to be able to afford and indulge in more sophisticated accounting systems than smaller companies. We therefore ask, is there any association between size of the software company and the accounting treatment chosen? Do small companies tend to expense, whereas larger companies tend to capitalize?

A visual scan of Table 2.2 does not yield any evidence of such association. Table 2.2 lists the 56 publicly held software vendor companies according to sales revenue. It is noticed immediately that construction costs are almost always expensed regardless of company size. Of the four companies having sales in excess of $100 million, only one reveals its policy of accounting for construction costs, and that company expenses such costs. Two companies in the $25-$33 million range capitalize some construction costs and expense others. Two of the 14 companies under $10 million that reveal their construction accounting policy capitalize these costs. The other 12 expense them. All companies that report their accounting treatment of acquired software capitalize these costs, so there appears to be no difference in accounting policy based on size of company for purchased software.

TABLE 2.2

SIZE ANALYSIS - BASED ON REVENUE

| CO. NO. | REVENUES ($M) | ACCOUNTING TREATMENT | | |
|---|---|---|---|---|
| | | PRODUCT ENHANCEMENTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
| 30 | 170.2 | | C | |
| 56 | 165.8 | | C | |
| 05 | 109.6 | | C | |
| 35 | 101.2 | E | C | E |
| 22 | 78.6 | | C | E |
| 18 | 76.3 | | C | E |
| 08 | 68.4 | E | C | |
| 01 | 65.0 | C | | |
| 53 | 64.4 | E | C | E |
| 13 | 58.1 | E | C | E |
| 46 | 46.5 | C | | E |
| 45 | 44.5 | | | E |
| 54 | 43.8 | Not Disclosed | | |
| 44 | 43.1 | | C | E |
| 14 | 40.5 | | C | |
| 16 | 39.5 | Not Disclosed | | |
| 09 | 39.4 | | | E |
| 24 | 37.5 | E | | E |
| 36 | 36.0 | E | | E |
| 50 | 35.5 | | | E |
| 26 | 33.0 | E | C | C/E |
| 51 | 30.0 | E | C | E |
| 37 | 26.2 | E | | E |
| 17 | 25.0 | C | C | C/E |
| 32 | 24.3 | Not Disclosed | | |
| 06 | 23.8 | Not Disclosed | | |
| 23 | 23.5 | E | C | E |
| 20 | 20.6 | E | C | E |
| 43 | 20.0 | | C | E |
| 03 | 18.4 | E | C | E |

Code

C - Capitalize
E - Expense

TABLE 2.2

SIZE ANALYSIS - BASED ON REVENUE

| CO. NO. | REVENUES ($M) | ACCOUNTING TREATMENT | | |
|---|---|---|---|---|
| | | PRODUCT ENHANCEMENTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
| 07 | 18.0 | E | | E |
| 47 | 17.5 | | | E |
| 28 | 17.0 | | C | E |
| 31 | 16.6 | | | E |
| 04 | 16.1 | E | | E |
| 48 | 15.5 | | | E |
| 40 | 14.3 | Nominal Capitalization | | |
| 55 | 13.4 | | | E |
| 42 | 12.8 | Not Disclosed | | |
| 25 | 12.6 | | C | |
| 34 | 9.2 | E | | E |
| 10 | 8.6 | | C | |
| 39 | 7.7 | C | | C |
| 29 | 6.5 | C | | |
| 11 | 6.1 | | | E |
| 21 | 6.1 | E | | E |
| 33 | 5.5 | E | C | C |
| 12 | 3.5 | C/E | | E |
| 52 | 3.1 | E | C | E |
| 15 | 1.9 | C | C | E |
| 19 | 1.6 | C | | E |
| 27 | 1.2 | C | | E |
| 49 | .876 | | | E |
| 41 | .525 | C | C | E |
| 38 | .508 | | | E |
| 02 | .218 | | | E |

Code

C - Capitalize
E - Expense

The only area where there may be a difference in accounting policy based on size is in the accounting for product enhancements, and here, the difference is not what might be expected. Of vendor companies that disclose their policy of accounting for enhancement costs, 14 of 17 companies (82.4 percent) having sales in excess of $10 million expense enhancement costs, compared to only 4 of 11 companies (36.4 percent) having sales of under $10 million. One of the smaller companies (9.1 percent) expenses some enhancement costs and capitalizes other enhancement costs. Six out of 11 smaller companies (54.5 percent) capitalize all enhancement costs, compared to 3 of 17 (17.6 percent) of the larger companies. Although the sample size is small, it is safe to conclude that, for this sample at least, companies having annual sales of less than $10 million are more likely to capitalize software enhancement costs than are companies with annual sales in excess of $10 million.

However, several caveats are in order. The $10 million cut-off is purely arbitrary. An infinite number of other arbitrary cut-off points could have been selected. Furthermore, the companies included in this sample are all publicly held. Had private companies also been included, the percentages could have been far different. If it is valid to assume that private companies tend to be smaller than public

companies, it would seem that smaller companies may be far more likely to capitalize enhancement costs than these statistics show.

If we can tentatively conclude that smaller companies are more likely to capitalize enhancement costs than are larger companies, several questions come to mind. If it is assumed that smaller companies will tend to choose accounting policies based on expediency rather than principle, then why do they tend to capitalize rather than expense enhancement costs? It would seem that the larger companies, having a more sophisticated accounting system, would be more likely to capitalize than would the smaller companies. But the evidence shows that this is not the case. One possible answer is that the smaller companies find it more difficult to raise capital, and that this difficulty can be partially overcome by capitalizing enhancement costs. The issue as to the relationship between software accounting policy and the ability to raise capital came to light during the course of the interviews, and led to the mailing of several questionnaires to commercial lending officers and financial analysts. This aspect of software accounting policy is discussed in more depth in Part II of this thesis.

If it is true that the smaller companies choose to capitalize enhancement costs in order to make it easier to obtain capital, then why do they not also capitalize software construction costs? The evidence shows that software construction costs are expensed rather than capitalized by almost all software vending companies regardless of size. One possible answer is that software construction costs are incurred before technological and market feasibility have been established, whereas enhancement costs are only incurred for software products that have already passed the technological and market feasibility tests. However, such an answer is imcomplete, because software vendors would not expend funds for software construction if the technological and market feasibility tests had not already been met. The feasibility test argument is at the heart of the FASB Exposure Draft on this topic, and this lineof reasoning was rather consistently opposed at the FASB Hearings on software accounting that were held in New York on May 2-3, 1985 (see Note at the end of Chapter 7 for a summary of these Hearings).

## Public Accounting Firms and Software Accounting Policy

Although all major public accounting firms have clients in all of the major industry groups, it is generally conceded that certain firms have a known or perceived expertise

in certain areas. Certain firms are thought to be experts on the banking industry, while others specialize in oil and gas, etc. It was not known whether any particular firm specialized in the software manufacturing industry, so an attempt was made to determine if one particular firm tended to have more than its ratable share of the software business. An attempt to obtain this information was made in two different ways. The first way, discussed in this Chapter, was to determine which public accounting firm signed the opinion in the annual report of the publicly held companies that could be identified. This information is readily available from the NAARS data base and from SEC filings. The second method, discussed in Chapter 3, was to include a question on this topic in the questionnaire that was sent to software vendor companies. Information obtained using these two different methods is not identical, because the method used in this chapter includes only publicly held companies, whereas the method used in Chapter 3 includes both public and private companies.

TABLE 2.3

COMPARISON OF CPA FIRMS
AUDITING PUBLICLY HELD SOFTWARE COMPANIES

| FIRM | CHAPTER 2 RESPONSES (FINANCIAL STATEMENTS) NUMBER OF RESPONSES | CHAPTER 2 RESPONSES (FINANCIAL STATEMENTS) PERCENTAGE | CHAPTER 3 RESPONSES (FINANCIAL STATEMENTS) NUMBER OF RESPONSES | CHAPTER 3 RESPONSES (FINANCIAL STATEMENTS) PERCENTAGE |
|---|---|---|---|---|
| Arthur Andersen & Company | 6 | 10.7% | 5 | 9.8% |
| Arthur Young & Company | 6 | 10.7 | 6 | 11.8 |
| Coopers & Lybrand | 5 | 8.9 | 6 | 11.8 |
| Deloitte Haskins & Sells | 5 | 8.9 | 3 | 5.9 |
| Ernst & Whinney | 5 | 8.9 | 10 | 19.6 |
| Main Hurdman | 1 | 1.8 | -- | -- |
| Peat, Marwick, Mitchell & Company | 8 | 14.3 | 7 | 13.7 |
| Price Waterhouse | 10 | 17.9 | 11 | 21.6 |
| Seidman & Seidman | -- | -- | -- | -- |
| Touche Ross & Company | 2 | 3.6 | 1 | 2.0 |
| Other | 8 | 14.3 | 2 | 3.9 |
| | 56 | | 51 | |

Table 2.3 lists the auditors of the 56 public software companies alphabetically. Price Waterhouse audits 10 software vendors, followed by Peat, Marwick, Mitchell & Company with 8, and Arthur Andersen & Company and Arthur Young & Company, with 6 each. Coopers & Lybrand, Deloitte Haskins & Sells, and Ernst & Whinney each audit 5 companies. Touche Ross & Company, the other member of the "Big 8", audits only 2 companies. The remaining companies are audited by a variety of national, regional and local firms. While it appears that Price Waterhouse is in first place, there are at least 4,000 companies in the United States that manufacture software for sale, so the 56 companies represented in this sample is a small percentage of the total number of companies in this industry. Most companies in the software industry are small and privately held, or are subsidiaries or divisions of larger public companies, and do not have separate annual statements.

In the course of the interviews it was learned that some public accounting firms place pressure on their audit clients to adopt or retain a certain software accounting policy. One of the questions in the vendor questionnaire (see Chapter 3) probed this point. As in the case with any other accounting policy, there is a tendency among audit clients to "shop"

for the public accounting firm that will allow the audit client to use the accounting policies it deems most desirable. Table 2.4 attempts to determine the software accounting policies of the public accounting firms that audit companies in the software industry, and whether their policies are consistent from client to client. This approach is not without fault, however. Although the public accounting firm in question may have a policy for software accounting, its individual clients may have views that differ from those of the firm, so the fact that the firm may sign the company's opinion paragraph that appears inthe annual report does not mean that the firm fully agrees with the company's software accounting policies. It only means that thereis not sufficient disagreement to preclude the firm from rendering a clean opinion.

TABLE 2.4

MATRIX SUMMARY OF SOFTWARE ACCOUNTING POLICIES

Arranged by Public Accounting Firm

| PUBLIC ACCOUNTING FIRM | SOFTWARE COMPANY NUMBER | ACCOUNTING TREATMENT | | | | |
|---|---|---|---|---|---|---|
| | | PRODUCT ENHANCEMENTS | PROGRAMMER SALARIES | DOCUMENTATION COSTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
| Arthur Andersen & Company | 2 | | E | E | | E |
| | 7 | E | | | | E |
| | 18 | | | | C | E |
| | 19 | C | C/E | | | E |
| | 32 | Not Disclosed | | | | |
| | 36 | E | | E | | E |
| Arthur Young & Company | 9 | | | | | E |
| | 33 | E | | C | C | C |
| | 34 | E | | | | E |
| | 41 | C | | | C | E |
| | 52 | E | | | C | E |
| | 56 | | | | C | |
| Coopers & Lybrand | 1 | C | | | | |
| | 5 | | | | C | |
| | 15 | C | C/E | | C | E |
| | 26 | E | | C | C | C/E |
| | 50 | | | | | E |
| Deloitte Haskins & Sells | 14 | | | | C | |
| | 25 | | | | C | |
| | 30 | | | | C | |
| | 31 | | | | | E |
| | 48 | | | | | E |
| Ernst & Whinney | 13 | E | | | C | E |
| | 20 | E | | | C | E |
| | 29 | C | | | | |
| | 43 | | | | C | E |
| | 54 | Not Disclosed | | | | |

Code

C - Capitalize
E - Expense

TABLE 2.4

MATRIX SUMMARY OF SOFTWARE ACCOUNTING POLICIES

(Continued)

| PUBLIC ACCOUNTING FIRM | SOFTWARE COMPANY NUMBER | ACCOUNTING TREATMENT | | | | |
|---|---|---|---|---|---|---|
| | | PRODUCT ENHANCEMENTS | PROGRAMMER SALARIES | DOCUMENTATION COSTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
| Peat, Marwick, Mitchell & Co. | 4 | E | | | | E |
| | 8 | E | | | C | |
| | 11 | | | | | E |
| | 17 | C | | | C | C/E |
| | 40 | Nominal Capitalization of Undisclosed Software Costs | | | | |
| | 49 | | | | | E |
| | 51 | E | | | C | E |
| | 55 | | | | | E |
| Price Waterhouse | 16 | Not Disclosed | | | | |
| | 23 | E | | | C | E |
| | 24 | E | | | | E |
| | 28 | | | | C | E |
| | 35 | E | | | C | E |
| | 42 | Not Disclosed | | | | |
| | 44 | | | | C | E |
| | 46 | C | | | | E |
| | 47 | | | | | E |
| | 53 | E | | | C | E |
| Touche Ross & Company | 6 | Not Disclosed | | | | |
| | 12 | C/E | | | | E |

Code

C - Capitalize
E - Expense

As Table 2.4 shows, the six clients audited by Arthur Andersen & Company generally expense software costs, although one client capitalizes the costs of acquired software and one client capitalizes product enhancements and some programming costs. Some companies did not reveal their software accounting policies, so the results could be either more or less consistent than the table shows.

The clients audited by Arthur Young & Company are a mixed group. Three of the six clients expense enhancement costs, one capitalizes and two do not disclose their policy. Four of the six capitalize acquired software costs and four expense construction costs. One client capitalizes construction costs and documentation costs. The official view of Arthur Young & Company, as revealed in its testimony at the FASB Hearing (see Note at the end of Chapter 7), is to capitalize detail design, coding and testing costs of constructed software. Thus, the official policy of the public accounting firmis not followed by four out of five clients included in this sample.

The five Coopers & Lybrand clients are also mixed, although there is a trend toward capitalization. Two of the three clients that reveal their product enhancement policy

capitalize these costs; one client expenses. All three clients that disclose their acquired software policy capitalize these costs. Two clients expense all construction costs, and one client expenses some construction costs and capitalizes others. The official Coopers & Lybrand position, as revealed at the Hearings, is that costs meeting the definition of an asset should be capitalized regardless of where they are incurred in the software product life cycle.

Three of the clients audited by Deloitte Haskins & Sells capitalize the costs of acquired software; their other two clients do not reveal their accounting policy for purchased software. The two clients that disclose their policy for construction costs expense these items.

The Ernst & Whinney clients are fairly consistent in their policies. All three clients that revealed their software accounting policies capitalize the costs of acquiring software and expense software construction costs. One client capitalizes product enhancements and two clients expense these costs. The official Ernst & Whinney policy, as revealed at the FASB Hearings, is to expense all software construction costs.

The Peat, Marwick, Mitchell & Company clients are also fairly consistent. Three of four expense product enhancement costs. All three that reveal their policy for acquired software capitalize these costs. Five clients expense all software construction costs; one client expenses some of these costs and capitalizes others.

The Price Waterhouse clients also display a large degree of consistency. Four of five expense product enhancement costs; one client capitalizes these costs. All five clients that reveal their policy capitalize acquired software costs. Eight clients expense software construction costs. It is amusing to note that the official Price Waterhouse position, as stated at the FASB Hearings, is to capitalize all costs incurred after the detail design phase of software construction.

Touche Ross & Company audited only two clients in this sample, and one of these clients did not reveal its software accounting policy. The client that did state its policy expenses construction costs and expenses some product enhancement costs. The official ToucheRoss position at the FASB Hearings was rather wishy-washy, to the effect that some construction costs could qualify for capitalization, and that enhancements could also qualify.

From analyzing the official views of the major accounting firms, where these views could be determined, and comparing them to the software accounting policies of their clients, it appears that clients do not always follow the official policy of their audit firm. However, a number of explanations may be given to account for this fact. Perhaps the auditors in the field are not aware of their firm's official view. Perhaps the view was only recently formulated, and was formulated so that the firm could testify at the FASB Hearings. Perhaps the company's deviation from the official public accounting firm view was not considered to be sufficiently material to withhold issuing a clean opinion. Or perhaps the facts and circumstances of the particular case justified a deviation from the official position.

TABLE 2.5

MATRIX SUMMARY OF SOFTWARE ACCOUNTING POLICIES

PUBLIC COMPANIES IN THE SOFTWARE INDUSTRY

| COMPANY | PRODUCT ENHANCEMENTS | PROGRAMMER SALARIES | DOCUMENTATION COSTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
|---|---|---|---|---|---|
| 1. AGS | C | | | | |
| 2. AMS/Realstar, Inc. | | E | E | | E |
| 3. Advanced Computer Techniques Corp. | E | | | C | E |
| 4. American Software, Inc. | E | | | | E |
| 5. Anacomp, Inc. | | | | C | |
| 6. Analysts International Corp. | Not Disclosed | | | | |
| 7. Apollo Computer, Inc. | E | | | | E |
| 8. Applied Data Research, Inc. | E | | | C | |
| 9. ASK Computer Systems, Inc. | | | | | E |
| 10. Astradyne Computer Industries, Inc. | | | | C | |
| 11. BPI Systems, Inc. | | | | | E |
| 12. BSL Technology | C/E | | | | E |
| 13. Computer Associates International | E | | | C | E |
| 14. Computer Data Systems, Inc. | | | | C | |
| 15. Computer Designed Systems, Inc. | C | C/E | | C | E |
| 16. Computer Task Group, Inc. | Not Disclosed | | | | |
| 17. Comserv Corporation | C | | | C | C/E |
| 18. Comshare, Incorporated | | | | C | E |
| 19. Consco Enterprises, Inc. | C | C/E | | | E |
| 20. The Continuum Company, Inc. | E | | | C | E |
| 21. Cook Data Services, Inc. | E | E | | | E |
| 22. Cullinet Software | | | | C | E |
| 23. Cycare Systems, Inc. | E | | | C | E |
| 24. DST Systems, Inc. | E | | | | E |
| 25. Data Architects, Inc. | | | | C | |

Code
C - Capitalize
E - Expense

TABLE 2.5

(Continued)

| COMPANY | PRODUCT ENHANCEMENTS | PROGRAMMER SALARIES | DOCUMENTATION COSTS | ACQUIRED SOFTWARE | CONSTRUCTION COSTS |
|---|---|---|---|---|---|
| 26. Dyatron Corporation | E | | C | C | C/E |
| 27. Harris & Paulson, Inc. | C | | | | E |
| 28. Hogan Systems, Inc. | | | | C | E |
| 29. Infodata Systems, Inc. | C | | | | |
| 30. Informatics General Corporation | | | | C | |
| 31. Integrated Software Systems Corporation | | | | | E |
| 32. Intermetrics, Inc. | Not Disclosed | | | | |
| 33. Lodgistix, Inc. | E | | C | C | C |
| 34. MacNeal-Schwendler Corp. | E | | | | E |
| 35. Management Science America, Inc. | E | | | C | E |
| 36. Mathematica, Inc. | E | | E | | E |
| 37. McCormack & Dodge Corp. | E | | E | | E |
| 38. Microsoftware International, Inc. | | E | | | E |
| 39. Miller Technology & Communications Corp. | C | | | | C |
| 40. The MPSI Group, Inc. | | | | | |
| 41. MTX International, Inc. | C | | | C | E |
| 42. NCA Corporation | Not Disclosed | | | | |
| 43. On-Line Software International, Inc. | | | | C | E |
| 44. Pansophic Systems, Inc. | | | | C | E |
| 45. Policy Management Systems Corp. | | | | | E |
| 46. Science Management Corp. | C | | | | E |
| 47. Scientific Software Corp. | | | | | E |
| 48. Scientific Systems Services, Inc. | | | | | E |
| 49. Sentry Data, Inc. | | | | | E |
| 50. Softech, Inc. | | | | | E |
| 51. Software AG Systems Group, Inc. | E | | | C | E |
| 52. Sterling Software, Inc. | E | | | C | E |
| 53. Systematics, Inc. | E | | | C | E |
| 54. Systems & Computer Technology Corp. | Not Disclosed | | | | |
| 55. Time Sharing Resources, Inc. | | | | | E |
| 56. Wyly Corporation | | | | C | |
| Summary | | | | | |
| Capitalized | 10/29=34% | 2/7=29% | 2/5=40% | 25/25=100% | 7/44=9% |
| Expensed | 19/29=66% | 5/7=71% | 3/5=60% | 0/25=0% | 40/44=91% |
| Percentage of Companies Not Disclosing | 28/56=50% | 51/56=92% | 51/56=92% | 31/56=55% | 14/56=25% |

Code
C - Capitalize
E - Expense

Table 2.5 provides a matrix summary of the software accounting policies of public companies in the software industry. The 56 companies included in the sample are listed alphabetically. Many companies did not reveal their software accounting policies in their financial statements or footnotes, so the data provided in this table is incomplete. However, a few tentative conclusions can be drawn. About two-thirds of the companies revealing their accounting policy for product enhancements expense these costs (66 percent), compared to 34 percent that capitalize. All 25 companies that disclosed their policy for accounting for acquired software costs capitalize these costs (100 percent). The vast majority (91 percent) of the companies in the sample expense software construction costs; only 9 percent capitalize these costs.

Comserv Corporation's Software Accounting Policy

Comserv Corporation's software accounting policy is worthy of special mention at this time for several reasons. For one thing, it is a large, publicly traded software company that capitalizes software costs. For another, it has maintained high visibility and is controversal because of

its software accounting policy.[2] Comserv's reported $2.2 million 1981 profit would have been a $1 million loss had Comserv chosen to expense software costs instead of capitalizing them. In 1982, the reported $2.5 million profit would have been a $4 million loss. Comserv has very plausible reasons for capitalizing software costs, and these reasons, as well as Comserv's software accounting policy, are discussed in Appendix A.

Briefly, Comserv capitalizes certain costs related to the enhancement, improvement and adaptation to particular requirements of the company's existing software. These capitalized costs are amortized using the straight-line method over six years for software designed to operate on IBM-compatible mainframe computer equipment, and over 4 years for

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[2]Comserv's software accounting policies are discussed in Appendix A of this treatise as well as in John Barres, "Comserv Corporation: Tracking the Accounting Methods of the Computer Software Industry," MBA thesis, New York University, 1984; Lee Berton, "Software Firms Debate Method of Accounting," Wall Street Journal, April 4, 1984, p. 31; Gary W. Burns and D. Scott Peterson, "Accounting for Computer Software," The Journal of Accountancy, April, 1982, pp. 50-51, 53-54, 56, 58; "Comserve Restates Its Results to Show Wider Loss in First Half," Wall Street Journal, September 26, 1983, p. 13; E. F. Hutton, "Comserv Corp: Forbes Article Reaction Rating Increased From 3-1 to 2-1," Wire No. 18, January 10, 1982; "Expenses, Schmexpenses," Forbes, May 23, 1983, p. 13; Eamonn Fingleton, "Capital Offense," Forbes, January 17, 1983, pp. 100-101; Eamonn Fingleton, "U.S. Laws Hit Hi-Tech," Accountancy Age, April 21, 1983, p. 21.

all other software. The costs of purchased software are capitalized and amortized on the same basis. Research and development costs are expensed, as required by FASB Statement No. 2. Costs related to software deemed to have an impaired future value are writtenoff immediately or amortized over the remaining period of benefit once this becomes apparent. Construction costs for its educational software are capitalized and amortized over 4 years. Fuller detail of the Comserv approach is to be found in Appendix A.

The criticism that has been made of the Comserv approach is the same criticism that has been leveled against any capitalization policy, namely, that the expenditures being capitalized more closely represent expenses than assets. It is just that the effect of capitalizing these expenditures has been somewhat more dramatic in the case of Comserv Corporation than it has been for the average software company. Also, Comserv has been outspoken regarding its policy, and so has drawn more attention than has the average capitalizing software company. In fact, it was partly as a result of Comserv's software accounting policy that the Securities and Exchange Commission decided to impose a moratorium on the capitalization of software costs.

SUMMARY

A comparison of data gathered by reading financial statement information (Chapter 2) and questionnaire responses (Chapter 3) reveals some interesting similarities and differences. A further reference to the findings of this part of the research will be found in the summary discussion of Chapter 3, where the responses to the field questionnaire addressed to software vendors are presented. Suffice it to say at this juncture that the results of the two enquiries, though not identical, are closely similar in most cases.

Thusfar, it would appear that accounting for software as reported in the financial statements of participant companies principally follows the following procedures: (1) product enchancement costs tend to be expensed, as do software construction costs, programmer salaries and documentation costs; (2) the cost of acquiring software tends to be capitalized. In the case of product enchancement costs, programmer salaries and documentation costs, a substantial minority of companies capitalize these costs.

There appears to be no consistent substantial association between these chosen procedures and either the field of operation or the size of the company, although there may be a tendency for smaller companies to capitalize enhan-

cement costs. Thusfar, we have no clear evidence that the choice of procedure is based strongly on principle, whether of pure accounting theory or reasoned professional opinion. Indeed, it was seen in chapter one that such is the ambiguity of formal professional pronouncements relevant to this subject that it would be difficult to derive any firm ground of principle from them. A serious attempt to derive a procedure from basic accounting principles has been made by Comserv, whether we agree with their conclusions or not. The rebuttals of the Comserv argument by practicing financial executives that have been made imply that theirs is not a solitary recourse to basic theory. But the very enthusiasm which these initial propositions generated within the industry affords a tentative evidence that, hitherto at any rate, software accounting procedures have developed on grounds of expedience or simplistic reaction rather than as a logical interpretation of the economic status of the firm or as a principled argument drawn from a material consideration of theoretic issues.

It will also be observed that thusfar there is little if any coincidence between the accounting procedures so far developed in the software industry and the recommendations derived in chapter 7. At the end of Part 1 of this thesis there is reported the details of the FASB Hearings on its Exposure Draft "Accounting for the Costs of Computer

Software to Be Sold, Leased, or Otherwise Marketed", from which it will be observed that software accounting still appears to reflect major confusions of thought and the demands of bottom-line reporting rather than attempts to present a true and a fair view of the state of the financial status of the reporting organization.

TABLE 2.6

SURVEY OF ACCOUNTING POLICIES
PUBLIC COMPANIES IN THE COMPUTER SOFTWARE INDUSTRY

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 1) AGS<br>a) $65 million<br>b) $33.8 million<br>c) 12/31/82<br>d) Coopers & Lybrand | Systems development for service and high technology industries. | Service revenues arising from time and material contracts are recognized as services are rendered. Revenues from sales of software packages are recognized after substantial completion of the company's obligations under the terms of its contracts. Revenues from maintenance contracts are recognized ratably over the term of each contract. Product sales, costs of product sales and related selling expenses are recorded when delivery is made to the customer. | Costs of software product enhancements with an established market are deferred and amortized over their estimated useful lives, generally five years. |
| 2) AMS/REALSTAR, INC.<br>a) $218 thousand<br>b) $41 thousand<br>c) 12/31/82<br>d) Arthur Andersen | Applications software for real estate industry. | Not disclosed. | Research and development costs are expensed as incurred, and include programmers' direct salaries, software documentation costs and other direct costs. |
| 3) ADVANCED COMPUTER TECHNIQUES CORPORATION<br>a) $18.4 million<br>b) $5.7 million<br>c) 12/31/82<br>d) Richard A. Eisner & Co. | Applications and systems software. | Information processing revenues are recognized in the period for which the service is provided. Software development revenues from time and materials contracts are recorded as services are performed. Revenues from fixed price software development contracts are recognized on the basis of estimated percentage of completion. Revisions in cost estimates and recognition of losses on these contracts are reflected in the accounting period in which the facts become known. Contract terms provide for billing schedules that differ from revenue recognition and give rise to unbilled receivables and billings in excess of costs and profits. Revenue from software package license agreements is recognized upon delivery of the software. Under license agreements which require modification of the software package to the customer's specifications, revenue is recognized on the percentage of completion basis. | The cost of acquired software systems is being amortized on the straight-line method over five years. Development and enhancement costs, principally related to certain software packages are charged to income when incurred. There was no charge to operations for such costs in the year ended December 31, 1982 because all enhancements to existing products were funded by contracts with clients under which the Company retained rights to the enhancements; amounts charged to operations for the years ended December 31, 1981 and 1980 were approximately $165,000 and $297,000, respectively. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 4) **AMERICAN SOFTWARE, INC.**<br>a) $16.1 million<br>b) $25.7 million<br>c) 4/30/83<br>d) Peat, Marwick, Mitchell & Co. | Applications software for IBM compatible computers. | Upon entering into a licensing agreement for proprietary software, the Company recognizes eighty percent (80%) of the licensing fee upon delivery of the software documentation system and user manuals, ten percent (10%) upon delivery of the computer tapes with source code, and ten percent (10%) upon installation, conditioned upon at least fifty percent (50%) of the licensing fee being billable within 45 days and installation contemplated within 180 days of execution of the licensing agreement. Otherwise, the Company recognizes income on proprietary software as billed. Revenue related to custom programming, maintenance, and education is recognized as the related services are performed. | All costs associated with research, development and enhancement of proprietary computer software systems are expensed as incurred ($1.1 million in 1983). |
| 5) **ANACOMP, INC.**<br>a) $109.6 million<br>b) $211.7 million<br>c) 6/30/82<br>d) Coopers & Lybrand | Software systems for commercial banks and thrift institutions. | Revenues are generally recognized as follows:<br><br>(1) Data preparation, data processing, facility management and computer output microfilm ("COM") services and sales are recognized as the services are performed or products are shipped.<br><br>(2) Revenues from granting perpetual licenses of existing software systems which do not require substantial modification are recognized at the time the license agreement is executed, collectibility is reasonably assured and the software system is delivered to the customer.<br><br>(3) Revenues from contracts for development and/or modifications to existing software systems are recognized under methods which approximate the percentage-of-completion method, except for revenues from development contracts with certain limited partnerships which are reported on the completed contract method, other than immaterial amounts reported for 1980. Losses on such contracts are recognized when identified. | Purchased computer software systems held for licensing to others are carried at cost less accumulated depreciation. Depreciation is recorded over the estimated marketing lives of the software, and is computed based on the greater of the amount calculated using either a percent-of-revenue or the straight-line method. The percent-of-revenue method is based on the total estimated future revenues expected to be derived from sales of the software, while straight-line depreciation is provided using estimated marketing lives of five to ten years. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| **5) ANACOMP, INC.** (Continued) | | Revenue recognized under items (2) and (3) may precede the date at which the customer may be billed pursuant to the contract terms. Substantially all unbilled revenue is collected in the year subsequent to the year revenue is recognized. | |
| **6) ANALYSTS INTERNATIONAL CORPORATION**<br>a) $23.8 million<br>b) $8.4 million<br>c) 6/30/83<br>d) Touche Ross & Co. | Applications software; programming; systems analysis and design; consulting. | Not disclosed. | Not disclosed. |
| **7) APOLLO COMPUTER, INC.**<br>a) $18 million<br>b) $19.4 million<br>c) 1/1/83<br>d) Arthur Andersen | Engineering, scientific and other technical applications systems. | Revenues from equipment and software sales are recognized upon shipment. Service revenues are recognized ratably over the contractual periods or as the services are provided. | All research and development costs, including costs for software development and enhancements to existing programs, are expensed as incurred. |
| **8) APPLIED DATA RESEARCH, INC.**<br>a) $68.4 million<br>b) $55.7 million<br>c) 12/31/82<br>d) Peat, Marwick, Mitchell & Co. | Systems and applications software. | The Company markets its products under lease agreements (generally 3 or 5 years) and permanent license agreements. Revenues are based on the present value of future payments and are recognized upon performance of the specific contract criteria (including product installation and customer acceptance) or upon execution of a non-cancellable contract. Imputed finance charges are recognized as revenue over the terms of the respective contracts. All associated incremental costs are accrued in the period that such related revenue is recognized.<br><br>Revenue from maintenance contracts, which cover periods of 1 to 3 years (1 to 4 years in 1981 and 1980) are based on the present value of future payments and are recognized upon execution of a non-cancellable contract. | Purchased software costs are [capitalized and] amortized over a ten year period. [The balance sheet discloses a net amount of $1.3 million at December 31, 1982.]<br><br>All costs associated with development and enhancement of software products are charged to operations as incurred. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 8) **APPLIED DATA RESEARCH, INC.** (Continued) | | Maintenance services entitle a customer to receive future releases and enhancements of the related products. Such future releases and enhancements are a direct result of the Company's ongoing research and development efforts and, accordingly, such costs are charged to earnings as accrued in the same period that related maintenance revenue is recognized. | |
| 9) **ASK COMPUTER SYSTEMS, INC.**<br>a) $39.4 million<br>b) $38.9 million<br>c) 6/30/83<br>d) Arthur Young | Applications software; hardware. | Revenue is generally recognized upon product shipment unless installation by the Company is required prior to customer acceptance, in which case, revenue is recognized upon installation. Revenue from sublicense of the Company's software by licensees is also recognized upon installation of the software.<br><br>Revenue from software subscription service, which includes updates to software products, is billed quarterly or annually, at which time revenue is recognized. Revenue from on-line remote processing service (ASKNET) and customer education is recognized as the services are provided. Net revenue includes $8,782,861, $5,301,522 and $1,996,504 in 1983, 1982 and 1981, respectively, from software subscription service, ASKNET, customer education and royalties, none of which accounted for more than 10% of net revenue in any year, except for ASKNET. ASKNET was 12% of net revenue in fiscal 1983 and the associated gross margin was 51%. | Software construction costs are expensed as incurred. |
| 10) **ASTRADYNE COMPUTER INDUSTRIES, INC.**<br>a) $8.6 million<br>b) $4.1 million<br>c) 12/31/82<br>d) Schwaeler Sloane Weitzman & Co. | Applications software systems and related services for banking and health care. | Not disclosed. | Purchased program costs are included in property and equipment on the balance sheet and are disclosed by footnote. Amortization policy is not disclosed. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 11) **BPI SYSTEMS, INC.**<br>a) $6.1 million<br>b) $7.1 million<br>c) 3/31/83<br>d) Peat, Marwick, Mitchell & Co. | Application software for microcomputers. | Revenue from software development contracts is recognized under the terms of the agreements utilizing the percentage of completion method on an individual system basis. The percentage of completion is determined by the cost-to-cost method. | Research and development costs for new software applications are charged to operations when incurred. |
| 12) **BSL TECHNOLOGY**<br>a) $3.5 million<br>b) $5 million<br>c) 9/30/82<br>d) Touche Ross & Co. | Medical clinical laboratory systems. | Revenues from contract sales are recognized on the percentage-of-completion method. Under percentage-of-completion accounting, contract revenue is accrued in the proportion that costs incurred bear to the Company's estimate of total contract costs. Losses are recorded in the period first identified and general and administrative expenses are charged to operations as incurred. Customers are billed according to the terms of the individual contracts.<br><br>The finance method of accounting is used for lease receivables. Revenues are recognized over the term of the lease in decreasing amounts related to the declining balance of the receivable. | Deferred software costs include production costs related to the enhancement or modification of an existing software product incurred after the conceptualization and design of the product have been completed. These costs are deferred and amortized on a straight-line basis over the estimated period of benefit, but not to exceed three years. Such costs which are not reasonably assured of realization or which are deemed to have no future value are written off as software enhancement costs in excess of purchase commitments in the year this becomes apparent.<br><br>Product development costs are charged to operations as incurred. |
| 13) **COMPUTER ASSOCIATES INTERNATIONAL, INC.**<br>a) $58.1 million<br>b) $50.7 million<br>c) 3/31/83<br>d) Ernst & Whinney | Standardized systems software | Product revenue is recognized upon installation and acceptance of the product by the customer. Installment accounts receivable resulting from product sales (perpetual and fixed-term licenses) with extended payment terms are discounted to present value using the rate estimated to be implicit in the contract.<br><br>Maintenance fees (support fees) are recognized at the time the agreement becomes effective. Estimated future costs for software maintenance are provided based on agreements in force. | Cost of purchased software products are capitalized. Amortization is provided by the straight-line method over five years. [Net software is $5.4 million at 3/31/83.] Costs associated with development of and enhancements to software products are expensed as incurred. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 14) **COMPUTER DATA SYSTEMS, INC.**<br>a) $40.5 million<br>b) $17.4 million<br>c) 6/30/83<br>d) Deloitte Haskins & Sells | Processing services; applications software; consulting. | Revenues on time and material contracts are recorded at the contractual rates as the labor hours and out-of-pocket expenses are incurred.<br><br>Revenues on cost-type contracts are recorded as reimbursable costs are incurred. Fixed fees are recorded on the percentage of completion basis, determined by the ratio of total incurred costs to anticipated total costs of the project.<br><br>Revenues on unit-price contracts are recorded at contractual selling prices of work completed and accepted by the customer.<br><br>Revenues on equipment and software sales are recorded when the units are delivered and installed.<br><br>Immediate recognition is made of any anticipated losses. | Computer software programs which have been acquired and capitalized are amortized on the straight-line basis over their estimated useful lives of five years. |
| 15) **COMPUTER DESIGNED SYSTEMS, INC.**<br>a) $1.9 million<br>b) $2.1 million<br>c) 8/31/82<br>d) Coopers & Lybrand | Turnkey systems for medical clinical laboratories. | Revenues from sales of computer systems under noncancellable fixed price contracts are recognized under a percentage-of-completion method. Projected losses, if any, are recognized in their entirety in the current period without reference to percentage-of-completion. Revisions in costs and earnings during the course of the contract are reflected during the accounting period in which the facts become known. Revenue related to other services is recognized as the services are performed or products are delivered. | The Company owns a library of proprietary software programs used in the design of customer systems. Costs related to the enhancement and improvement of existing programs or the purchase of new programs are capitalized and amortized over their estimated useful life of five to seven years. The costs of developing new proprietary software are expensed as incurred. Costs related to the library of software deemed to have no future value are written off in the year this becomes apparent.<br><br>Capitalized software costs include programmer salary costs of $173,007 in 1982, $162,079 in 1981, and $97,688 in 1980. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 16) COMPUTER TASK GROUP, INC.<br>a) $39.5 million<br>b) $16.9 million<br>c) 12/31/82<br>d) Price Waterhouse | Software packages for the transportation industry and heavy equipment dealers; programming; systems engineering and analysis; services. | Revenue is recognized from services when the service has been provided. The Company recognizes as revenue from software package license agreements 90% of the license fee upon execution of a non-cancellable contract and the remaining 10% upon installation. | Not disclosed. |
| 17) COMSERV CORPORATION<br>a) $25 million<br>b) $53.3 million<br>c) 12/31/82<br>d) Peat, Marwick, Mitchell & Co. | Applications software for manufacturing. | At the time of entering into licensing agreements for the use of proprietary software, the Company recognizes the lesser of one-half of the revenue or the nonrefundable portion of the agreement price paid by the customer at that time. The remainder of the agreement price is recognized as revenue upon effective delivery of the software. Revenue related to other services is recognized as the services are performed. | The Company owns various proprietary computer software products that it licenses to customers and operates in its computer services facility. Certain costs related to the enhancement, improvement, and adaptation to particular requirements of the Company's existing proprietary software are capitalized and are being amortized primarily on a straight-line basis over the estimated period of benefit, which is generally six years for software designed to operate on IBM-compatible mainframe computer equipment, and four years for all other software. The costs of purchased software are capitalized and amortized on the same basis. The costs incurred in the search for or evaluation of product or process alternatives or in the design of pre-production models or in conceptual formulation or translation of knowledge into designs for new or significantly improved software products are charged to research and development expense as incurred. Costs related to software deemed to have an impaired future value are written off immediately or amortized over the remaining estimated period of benefit once this becomes apparent. Net software construction costs amounted to $9,634,616 and $5,060,840 at December 31, 1982 and 1981, respectively. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 17) COMSERV CORPORATION (Continued) | | | The Company designs and constructs educational courseware that aids customers in effectively utilizing the Company's software products. These courseware construction costs are capitalized and are being amortized over the estimated period of benefit, which is four years. Net educational courseware construction costs amounted to $1,711,488 and $536,380 at December 31, 1982 and 1981, respectively. |
| 18) COMSHARE, INCORPORATED<br>a) $76.3 million<br>b) $59.4 million<br>c) 6/30/83<br>d) Arthur Andersen | Applications software. | Not disclosed. | The cost of purchased software is capitalized and amortized on a straight-line basis over the lesser of 60 months or the expected life... Research and development costs are charged to operations as incurred. [Net capitalized software is $1.5 million as of 6/30/83.] |
| 19) CONSCO ENTERPRISES, INCORPORATED<br>a) $1.6 million<br>b) $1.5 million<br>c) 12/31/82<br>d) Arthur Andersen | Financial applications software and support services. | Revenues are recognized over the life of the contract, normally a twelve month period. Sixty-five percent of software licensing revenues are recognized upon the signing of the contract, and the remaining thirty-five percent is recognized ratably over the life of the contract. Support agreement revenues are recognized at varying percentages upon contract signing and ratably over the remaining contract lives, depending on the level of support to be provided.<br><br>Deferred revenues represent the portion of contract revenues not yet recognized. The revenue recognition policy is designed to match the recording of income to the incurrence of the expenses associated with servicing the contract. | Costs to develop a software package are charged to expense currently. The Company defers costs associated with the enhancement of existing software packages. Deferred costs include direct labor and computer costs. Amortization of deferred costs is charged to current operations on the straight-line method based on an estimated useful life of five years. For tax purposes, software development and enhancement costs have been expensed as incurred. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 20) THE CONTINUUM COMPANY, INC.<br>a) $20.6 million<br>b) $14.7 million<br>c) 3/31/83<br>d) Ernst & Whinney | Applications software; service bureau. | Revenue from a license sale is recorded when the software product licensed is deliverable.<br><br>Revenue from systems installation charges, computer processing fees, education and consulting are recognized as services are performed and are billed at contractual rates.<br><br>Deferred revenue consists primarily of advances on certain software and on installation contracts. The advances are recognized as revenue upon the completion of specific contractual events. | Purchased computer programs are carried at cost less accumulated amortization. Amortization is provided evenly over the estimated useful lives of the programs, generally five years. [Net amount of $175,000 appears in the 3/31/83 balance sheet.]<br><br>The costs of developing and improving computer programs are charged to expense as incurred. Some of these costs are funded by revenue received from customers. |
| 21) COOK DATA SERVICES, INC.<br>a) $6.1 million<br>b) $2.8 million<br>c) 12/31/82<br>d) Kenneth Leventhal & Company | Applications software for oil and gas. | Customers are billed at the end of each month for actual usage of the various programs and the Company recognizes such revenues when billed. Certain customers license one or more of the programs for use on their own computer equipment. These customers pay a one-time fee for use of the program, and this fee is recognized as revenue upon delivery. The Company has no obligation to provide programming changes made subsequent to the licensing unless the customer enters an agreement whereby it pays a monthly fee to the Company for the right to receive such program enhancements. These fees are reported as revenue monthly as billed. The Company also normally agrees to provide support services for a period of time to purchasers of its programs. Those services are billed to the customers and revenues recognized as the services are rendered. | The costs associated with developing new program applications and enhancements to existing applications are treated as research and development costs and expensed as incurred.<br><br>Costs incurred to develop computer programs, which include wages and computer usage and supplies, without any contractual arrangements with customers, are charged to expense as research and development costs. Such costs approximated $70,000 in 1980, $190,000 in 1981 and $360,000 in 1982. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 22) **CULLINET SOFTWARE**<br>a) $78.6 million<br>b) $107.1 million<br>c) 4/30/83<br>d) Tonneson, Mela, Curtin & Company [Wakefield, Mass.] | Database management systems; applications software. | The Company recognizes revenue from the initial "license to use" computer software upon the delivery and acceptance of the programs by the customer. A license to use is issued for a period of one year. After the initial term of the license, an annual renewal fee is charged. Certain contracts allow the customer to pay the initial license fee in monthly installments over a period of from one to five years with interest and administrative fees, at varying rates, charged on the unpaid balance.<br><br>Discounts to Foreign Representatives. The Company utilizes foreign representatives to market and provide technical support for its products in various parts of the world. As part of the agreements with the foreign representatives, the Company gives discounts that are typically 55% of the list price of the products licensed through the foreign representatives. The Company classifies the discounts as a reduction of revenue. | Purchased Computer Software Licenses. The costs to acquire licenses of certain computer software products and product lines are being amortized on the straight-line method over the estimated economic lives of the assets, which currently range from five to ten years. Certain provisions of the license agreements require royalty payments when the Company recognizes revenue from licensing the products to its customers.<br><br>Purchased computer software licenses are shown net of accumulated amortization of $1,273,000 and $312,000 at April 30, 1983 and 1982, respectively.<br><br>Research, development and installation costs are charged to expense as incurred. |
| 23) **CYCARE SYSTEMS, INC.**<br>a) $23.5 million<br>b) $15.3 million<br>c) 12/31/82<br>d) Price Waterhouse | Applications software for the medical profession. | The Company is in one line of business which consists of providing information processing services, including the incidental sale of equipment and the licensing of related software for such information processing, primarily to physicians and medical group practices throughout the United States and Canada. Revenues are recognized for financial statement purposes when the related service is provided and upon shipment of equipment and software. | Research and development costs, principally the design and development of proprietary systems and programming, are expensed as incurred. Routine maintenance of proprietary software is also expensed as incurred.<br><br>The Company purchased the exclusive rights to a software license in 1981 for licensing to physicians and medical group practices. The cost of the software license will be amortized over a seven-year period. [Balance of $791,000 at 12/31/82.] |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| **24) DST SYSTEMS, INC.**<br>a) $37.5 million<br>b) $42.1 million<br>c) 12/31/82<br>d) Price Waterhouse | Software systems for the mutual fund industry. | Revenue is recognized upon completion of services performed | Software research, development and maintenance costs are expensed as incurred. Research and development costs were $16,000, $1,097,000 and $1,566,000 for the years ended December 31, 1980, 1981 and 1982, respectively. |
| **25) DATA ARCHITECTS, INC.**<br>a) $12.6 million<br>b) $8.6 million<br>c) 11/30/82<br>d) Deloitte Haskins and Sells | Custom software; applications software for banking industry. | The Company recognizes revenue from consulting services as they are rendered. Revenues from software product license agreements are recognized in accordance with the payment terms of the agreement: thirty percent of the fee upon execution of a contract and the remaining seventy percent upon installation and customer acceptance. | Licensed software (acquired) is amortized over five years using the straight-line method beginning in the year in which product sales are first made. |
| **26) DYATRON CORPORATION**<br>a) $33 million<br>b) $30 million<br>c) 12/31/82<br>d) Coopers & Lybrand | Service bureau; applications software. | Data processing revenues are recognized in the period for which the service is provided. Rental revenue from the leasing of terminals is recognized using the operating method.<br><br>Software license revenues are recognized when the contract is signed, a deposit has been received and delivery of the tapes and manuals is scheduled within ninety days from the contract date. Fees related to support agreements for software packages are recognized at the time of receipt of the fee in cash or if earlier upon receipt of executed agreements; estimated incremental expenses directly related to the contracts are accrued on a current basis. Receipts of license fees for software packages under development are recorded as deferred revenue and are recognized when the packages become deliverable. General and administrative expense includes $318,000, $380,000, and $922,000 as a provision for doubtful accounts in 1982, 1981, and 1980, respectively. | Research and development (R & D) costs are expensed as incurred. (R & D activities include the search for new knowledge, the translation of new or other knowledge into a plan or design for a new or significantly improved product, and the conceptual formulation, design, and testing of product alternatives. Most of the Company's R & D activities relate to development of new computer software which is used in producing new services.) Also expensed as incurred are computer software maintenance and enhancement costs and the costs of developing special software under cost reimbursement contracts. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 26) DYATRON CORPORATION (continued) | | | Other costs applicable in the development of software obtained for the purpose of producing a new product or service for sale to customers are capitalized and amortized over the estimated useful life of the software, generally five to seven years, using the straight-line method. These costs consist primarily of the purchase price of externally purchased programs, the programming, debugging, and documentation costs for internally developed programs, and the costs of developing the related operating procedures. [Balance sheet indicates $2.2 million (net) at 12/31/83.] |
| 27) **HARRIS & PAULSON, INC.**<br>a) $1.2 million<br>b) $1.8 million<br>c) 9/30/82<br>d) Fleming, Tempas & Company [Englewood, Colorado] | Applications software for the legal profession. | Revenue is derived from licensing the use of a software system and the sale of related hardware (system sales), and providing an in-house time sharing service bureau (data processing services). System sales revenue is generally recognized when a sales contract is executed with the customer; installation of the related hardware and software is accomplished in a reasonable time; and substantially all costs to complete the sale and installation have been incurred or accrued. Data processing services revenue is recognized when the related services are provided. | Costs relating to the enhancement, which result in the betterment of existing software, are capitalized. Research and development cost are charged to expense as incurred. [Software is $285,000 at 9/30/82.] |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 28) HOGAN SYSTEMS, INC.<br>a) $17 million<br>b) $28.2 million<br>c) 3/31/83<br>d) Price Waterhouse | Applications software for the banking industry | Under current contracts the Company recognizes revenue from the licensing of previously marketed software programs upon delivery of documentation and recognizes revenue from contracts for the licensing of programs under development when the programs are delivered. Previously some of the Company's contracts required the customer to make one or more nonrefundable progress payments but gave the customer the right to cancel the purchase and discontinue further payments at any time. Revenue from these contracts is recognized as payments are received. Also some contracts required the customer to make one or more nonrefundable progress payments with final payment upon acceptance. For these contracts the progress payments are recognized as revenue after delivery of the software and the final payment is recognized upon acceptance.<br><br>Both initial and renewal maintenance contracts are of one-year duration and revenue is recognized ratably over the maintenance contract term. Revenue from customer training and installation support is recognized upon completion of the service provided. Reimbursement by customers under participation agreements are included in revenues in the period in which the related costs are incurred. These participation agreements represent contributions by customers to the development of specific software systems. The agreements include a provision for the customers to recover, solely from a royalty on the licensing of the developed software to unrelated parties, all or a portion of amounts contributed. | The cost of purchased software is capitalized and depreciated, on the straight-line basis over five-year periods. Development costs incurred by the Company are expensed as incurred. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 29) INFODATA SYSTEMS, INC.<br>a) $6.5 million<br>b) $4.2 million<br>c) 12/31/82<br>d) Ernst & Whinney | Off the shelf computer programs. | Revenues relating to licensing of the Company's established software products are generally recognized at the time of entering into licensing agreements or upon receipt of other appropriate documentation supporting a binding agreement to purchase.<br><br>Revenue from consulting services is recognized on the percentage-of-completion method for fixed price agreements and on the basis of hours incurred at contract rates for time and material agreements.<br><br>Revenues associated with license agreements with payment terms which extend beyond one year are discounted to their present value.<br><br>Revenues associated with customer maintenance agreements are recognized on a monthly basis. The cost of such maintenance support is recorded as incurred. | Costs associated with the enhancement or modification of existing software products for the purpose of creating new features are capitalized. Through 1981, such costs were amortized over the anticipated period of future benefit, but not in excess of seven years. During 1982, management determined that amortization of these costs over a five year period from the date the software is placed in service would provide a better matching of revenues and related expenses. The effect of this change in estimate is not material to 1982 income or earnings per share. The effect of this change on future years' operations is not determinable, because it will be dependent upon the amount of future expenditures. |
| 30) INFORMATICS GENERAL CORPORATION<br>a) $170.2 million<br>b) $92.7 million<br>c) 12/31/82<br>d) Deloitte Haskins & Sells | Systems and applications software; consulting; processing services. | Revenue from sales of software products results from agreements which provide customers the right to use these products on a perpetual or fixed term basis. Such revenues are generally recognized based upon the execution of the agreement and delivery of the product to the customer which, in certain cases, involves the use of the percentage-of-completion method of accounting based on progress toward installation.<br><br>Revenue from Professional Services is recognized as earned, which in the case of certain contracts involves the use of the percentage-of-completion method of accounting.<br><br>Revenue from Information Processing Services is recognized in the period in which such services are rendered. When products and services are billed prior to the time the related revenue is earned, deferred revenues are recorded. | Research and product development expenses represent the costs of designing, developing and testing new software and other computer-related products. These costs include amounts expended to develop products for which the company has issued advance license agreements to customers. Revenue related to these license agreements is recognized on the percentage-of-completion method of accounting.<br><br>Costs of software products purchased from outsiders or acquired through business combinations are deferred and amortized over the lesser of the projected term of the related revenue or five years, using the straight-line method. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 31) **INTEGRATED SOFTWARE SYSTEMS CORPORATION**<br>a) $16.6 million<br>b) $11.6 million<br>c) 12/31/82<br>d) Deloitte Haskins & Sells | Software for graphic applications. | The company recognizes 60% of the revenue from issuance of a perpetual license to use its software upon signing of an agreement and shipment of the related software; 40% is recognized upon completion of installation.<br><br>Revenue from the rental of computer software programs is recognized ratably over the period of the lease agreements.<br><br>Income from annual maintenance and enhancement fees is recognized ratably over the periods covered by such agreements. | All software development costs are expensed as incurred. |
| 32) **INTERMETRICS, INC.**<br>a) $24.3 million<br>b) $10.3 million<br>c) 2/28/82<br>d) Arthur Andersen | Software production tools; applications and systems engineering software for the space, defense and aviation industries; industrial productivity monitoring and control systems. | The Company recognizes revenue on government and commercial contracts under the percentage-of-completion method. The percentage-of-completion is determined by relating the cost incurred to date to the estimated total cost in order to measure the stage of completion. The cumulative effects resulting from revisions of estimated total contract costs and revenues are recorded in the period in which the facts requiring revision become known. When a loss is anticipated on a contract, the full amount thereof is provided currently.<br><br>The amounts shown as unbilled costs and fees on contracts in process represent the excess of expenditures on contracts, plus profits or less losses recorded thereon, over billings to date. Billings made on contracts are recorded as a reduction of unbilled costs and fees, and to the extent that such billings exceed costs incurred, they are recorded as unearned revenue. | Not disclosed. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 33) LODGISTIX, INC.<br>a) $5.5 million<br>b) $5.4 million<br>c) 6/30/83<br>d) Arthur Young | Applications software for hotel industry (reservations). | Not disclosed. | Costs applicable to the development of software obtained for the purpose of producing a new product or service for sale to customers are capitalized and amortized over the estimated useful life of the software generally three to five years, using the straight-line method. These costs consist primarily of the purchase price of externally purchased programs, the programming, debugging and documentation costs for internally developed programs and the costs of developing the related operating procedures. Computer software maintenance and minor enhancement costs are expensed as incurred. [Net software is $643,807 at 6/30/83.]<br><br>At June 30, 1983, the Company's unamortized costs for internally developed computer software costs was $588,165. The Company has capitalized internal software development costs during the past three years as follows: |

| | 1983 | 1982 | 1981 |
|---|---|---|---|
| Capitalized costs | $300,176 | $149,940 | $127,072 |
| Amortization | 222,196 | 156,000 | 145,484 |
| Net capitalized costs | $ 77,980 | $ (6,060) | $(18,412) |

| | | | |
|---|---|---|---|
| 34) MACNEAL-SCHWENDLER CORPORATION<br>a) $9.2 million<br>b) $5.2 million<br>c) 1/31/83<br>d) Arthur Young | Software for computer aided engineering. | Revenues from leasing computer software products are recognized monthly as earned. The software leases generally provide for a monthly minimum rental with additional amounts due based on usage. | Research and development costs relate to designing, developing and testing new or significantly improved software products and include an allocation of general and administrative expenses. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 35) MANAGEMENT SCIENCE AMERICA, INC.<br>a) $101.2 million<br>b) $76.3 million<br>c) 12/31/82<br>d) Price Waterhouse | Applications software. | The Company recognizes 90% of the license fees from mainframe software package agreements upon execution of the contract and the remaining 10% upon installation of the software package. Microcomputer software license fees are recognized upon shipment of the product or upon execution of an agreement. Revenues related to long-term contracts to develop microcomputer software for hardware manufacturers are recognized on the percentage of completion method of accounting. Fees related to support agreements for software packages are recognized at the time of receipt of the fee in cash or, if earlier, upon receipt of an executed agreement; estimated incremental expenses directly related to the support of customers under such agreements are accrued on a current basis. The Company has established an allowance for returns and doubtful accounts of $4,295,000, $2,295,000, and $1,527,000 at December 31, 1982, 1981, and 1980, respectively. | The cost of software packages purchased from outsiders or acquired through business combinations is amortized using the straight-line method over periods not exceeding seven years for financial reporting purposes and five years for income tax purposes. All costs associated with development and enhancement of software products are expensed as incurred. |
| 36) MATHEMATICA, INC.<br>a) $36 million<br>b) $21 million<br>c) 6/30/82<br>d) Arthur Andersen | Contracted services; systems software. (Subsequently acquired by Martin Marietta Corporation) | Revenue from professional service activities is primarily derived from projects, and is recognized on a percentage-of-completion basis by relating the actual cost of work performed to date to the current estimated total cost of the respective projects. When estimates indicate a probable ultimate loss on a project, the full amount thereof is recognized.<br><br>Proprietary database management systems are generally marketed under long-term noncancellable license arrangements. The present value of license payments are recognized as revenue upon commencement of the licensing agreements and the imputed finance charges are recorded as earned revenues over the term of the contracts... Annual maintenance support fees, which are not refundable, are recognized as revenue on the anniversary date of the licensing agreement. | All costs associated with research, design, development and documentation of new products, as well as the enhancement of existing products, including allocable indirect costs, are expensed as incurred. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
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| 37) **McCORMACK & DODGE CORP.**<br>a) $26.2 million<br>b) $15.8 million<br>c) 12/31/81<br>d) Main Hurdman | Application software for the finance industry. (Subsequently acquired by Dun & Bradstreet) | Revenue from the licensing of previously marketed software programs is recognized upon execution of a contract. Revenues from contracts for the licensing of programs under development are recognized when the program has become deliverable. At the time income is recorded, future costs associated with the sale are fully provided. Enhancement revenue is recorded ratably over the life of the contract. | All costs associated with program development, continuing maintenance and support of existing software packages are expensed as incurred. |
| 38) **MICROSOFTWARE INTERNATIONAL, INC.**<br>a) $508,000<br>b) $676,000<br>c) 9/30/82<br>d) McGladrey | Applications software for microcomputers. | Revenue is recognized upon installation of the respective computerized hardware system or software package. | Research and development costs, consisting primarily of salaries paid to programmers who develop the Company's software packages, are expensed as incurred. |
| 39) **MILLER TECHNOLOGY & COMMUNICATIONS CORP.**<br>a) $7.7 million<br>b) $10.8 million<br>c) 9/30/82<br>d) Pannell, Kerr, Foster | Systems hardware and software for educational institutions. | Revenue from the sale of hardware is recognized when shipped. Revenue from the licensing of proprietary software is recognized based upon delivery of the product to the customer, which in certain cases, may involve use of the percentage-of-completion method of accounting. | Computer software costs are included in "other assets." Enhancement and improvement costs are deferred and amortized over five years. |
| 40) **THE MPSI GROUP, INC.**<br>a) $14.3 million<br>b) $15.6 million<br>c) 9/30/83<br>d) Peat, Marwick, Mitchell & Co. | Applications software and related data bases for petroleum companies and other multi-outlet retailers. | The Company allows certain customers to utilize its computer software under multi-year license contracts. Revenue on these long-term software user agreements is recognized at the time the contract becomes effective. There are no future direct costs associated with these agreements since monthly computer usage charges and training fees (if any) are passed on to the customer. The revenue and corresponding long-term receivables related to these contracts are stated at the present value of the payments to be received over the contract term (normally five years). The present value is determined using the prime rate applicable to the Company on the effective date of the contract. The discount related to the amounts maturing in excess of one year is amortized to income on an accelerated method that produces level interest earnings based on the outstanding balances. | Developed computer software costs are reflected at a nominal value in the financial statements in order to give recognition to a significant earning asset. The reported value is not intended to reflect actual costs which are expensed annually as the software is developed and are significantly greater than the recorded amount. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 41) MTX INTERNATIONAL, INC.<br>a) $525 thousand<br>b) $1 million<br>c) 9/30/83<br>d) Arthur Young | Software and hardware microcomputer products to construction contractors; management and technical consulting services. | Revenue is recognized on software/hardware products upon shipment to the customer. Revenue from consulting and other services is recognized at the time the services are performed or ratably over the term of maintenance contracts. Revenue from the granting of exclusive dealerships is recognized when the fees are due. | Research and development costs relating to developing new proprietary software are expensed as incurred.<br><br>Costs associated with the purchase of marketable software and the addition of features or capabilities which enhance the product are deferred and are being amortized on a straight-line basis over the estimated period of benefit, which is five years. |
| 42) NCA CORPORATION<br>a) $12.8 million<br>b) $14 million<br>c) 12/31/82<br>d) Price Waterhouse | Applications software. | The Company uses the percentage of completion method for recognizing revenue of Computer Aided Design (CAD) software packages in progress, which in some cases can require up to four months to convert and install. The Company recognizes revenue for its manufacturing and financial computer software packages at the time of installation; such packages generally require less than one month to install.<br><br>In addition, the Company enters into one year software maintenance contracts, which incldue software enhancements, at the time of software installation. Revenue from these contracts, which are renewable on an annual basis, is recognized on a straight-line basis over the term of the contract. | Not disclosed. [No capitalized software is apparent in the balance sheet; appears to be expensed as incurred.] |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 43) ON-LINE SOFTWARE INTERNATIONAL, INC.<br>a) $20.2 million<br>b) $16.3 million<br>c) 5/31/83<br>d) Ernst & Whinney | IBM Systems Software | Revenue is derived from licensing the use of software products, providing ongoing maintenance with regard to software product licenses, and providing consulting and education services. Revenue is recognized from consulting and education when the related service is provided. Revenue related to software products is generally recognized after a licensee has agreed to accept the product; licensee acceptance usually follows a thirty-day trial period. Maintenance agreements are sold for one-year periods beginning on the first anniversary of the license agreement, and revenue is recognized upon sale.<br><br>Education services are billed to customers in advance of the date of the course of instruction. Accordingly, such advance billings are recorded as deferred revenue. | All costs related to the development of software products are charged to expense as incurred. The cost of proprietary software purchased from outsiders is amortized over its useful life or five years, whichever is shorter. [The balance sheet indicates $1,681,000 in purchased software at 5/31/83.]<br><br>Purchased proprietary software has been recorded at cost based upon purchase agreements for the proprietary products. The agreements provide for the Company to pay commissions averaging approximately 15 to 20% of revenue derived from the sale of these products. The cost of purchased proprietary software has been reduced by $44,000 of accumulated amortization. |
| 44) PANSOPHIC SYSTEMS, INC.<br>a) $43.1 million<br>b) $33.1 million<br>c) 4/30/83<br>d) Price Waterhouse | Systems and applications software. | Revenue from perpetual license agreements, leases, rentals and installment sales are recognized upon shipment of the product, receipt of a signed contract and acceptance by the customer. Revenues from customer support agreements are recognized when billed. Lease revenues are recorded at the fair value of an equivalent perpetual license at the date of the contract; additional amounts due under lease agreements, principally finance charges are recorded as earned revenues over the term of the contract. | Costs of product development are charged to income as incurred.<br><br>[Purchased software is recorded at cost and is being amortized] on a basis related to estimated revenues for the seven years following the purchase. [Net purchased software is $8.1 million at 4/30/83.] |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 45) POLICY MANAGEMENT SYSTEMS CORPORATION<br>a) $44.5 million<br>b) $43.3 million<br>c) 9/30/82<br>d) Clarkson, Harden and Gantt [Columbia, South Carolina] | Applications software for the insurance industry. | Systems licensing agreements generally have an initial fee (presently called an Initial License Charge) and a monthly fee (presently called a Monthly License Charge). The monthly charge is adequate to cover, among other things, all continuing costs to be incurred by the Company as a result of the license agreement and provide a normal profit. The monthly charge is recorded and recognized as revenue on a monthly basis throughout the term of the license agreements. The initial charge is recognized as revenue at the time the license agreement is executed. Earlier agreements provided for installment payments of the initial charge and the revenue amounts were discounted at then current interest rates, and, in some instances, a deferment of the initial charge, with monthly charges for such deferment. Services revenues are recognized monthly as the services are performed. Advance payments for services are recorded as unearned revenue and not recognized as revenue until the performance of such services. | The cost of software research and development by the Company is charged to expense as incurred. The amounts charged were $11,875,000, $6,763,000 and $4,441,000 in 1982, 1981, and 1980, respectively. |
| 46) SCIENCE MANAGEMENT CORPORATION<br>a) $46.5 million<br>b) $23.7 million<br>c) 12/31/82<br>d) Price Waterhouse | Management services; consulting; systems design. | The Company generally recognizes income from professional service and construction contracts on the percentage of completion method. The percentage of completion is determined at the end of an accounting period by the ratio of time expended to management's estimate of total time required for each project. The percentage so determined is applied to the total contract fee and the resultant amount is compared with the amount billed. The excess of fees earned over amounts billed is reported as unbilled receivables. The excess of billings over fees earned is included in accounts payable and accrued expenses. | Costs of developing new proprietary computer software products are expensed as incurred. Costs related to the improvement and enhancement of existing computer software and the adaptation of such software for use on other computer equipment are deferred. Deferred costs are amortized on a straight-line basis over the estimated period of benefit (not to exceed three years), or are written-off in the year a particular software system is deemed to have no future value. Unamortized software construction costs of $969,000 and $550,000 are included in other assets at December 31, 1982 and 1981, respectively. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 47) **SCIENTIFIC SOFTWARE CORP.**<br>a) $17.5 million<br>b) $18.1 million<br>c) 12/31/82<br>d) Price Waterhouse | Applications software for the petroleum industry; processing; consulting. | Proprietary software programs are licensed to customers for either a 99-year term or on a short-term basis, for periods of one to five years. Revenues from 99-year licenses are generally recorded in accordance with the timing of the obligations set forth in the executed license agreement. Revenues from the first year of a short-term license are recorded in full when the license is executed. Revenues subsequent to the first year of a short-term license are recorded annually on the renewal dates.<br><br>Revenues on time and material contracts are recorded at the contractual rates as the labor hours and associated costs and expenses are incurred. Fixed price contract revenues are recorded over the term of the project based on the percentage of completion method of accounting. | The Company expenses, as incurred, the costs of developing proprietary computer programs. [Company is also developing software as a general partner in a research and development partnership arrangement.] |
| 48) **SCIENTIFIC SYSTEMS SERVICES, INC.**<br>a) $15.5 million<br>b) $9.6 million<br>c) 12/31/82<br>d) Deloitte Haskins & Sells | Software and systems for electric utilities and industry. | Revenue on time and material contracts is recognized as time is expended and costs are incurred. Revenues from fixed priced contracts are recognized on the percentage of completion method, measured by the percentage of labor and overhead costs incurred to date to total estimated labor and overhead costs for each contract. | Research and development costs are expensed as incurred. Costs from fixed price contracts are recognized on the percentage of completion basis, measured by the percentage of labor and overhead costs incurred to date to total estimated labor and overhead costs for each contract. Costs incurred but not recognized are deferred and recognized under the percentage of completion method over the remaining contract period. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 49) **SENTRY DATA, INC.**<br>a) $876,000<br>b) $853,000<br>c) 12/31/82<br>d) Peat, Marwick, Mitchell & Co. | Hospital information systems and software. | Hospital systems revenue is recognized on a completed-contract-segment basis as installation of each respective systems segment is completed. Respective services revenue is derived from services rendered on an hourly basis and is recognized as services are rendered. Such revenue includes systems installation, when contracted for on an hourly basis, as well as ongoing systems maintenance. | Expensed as incurred. |
| 50) **SOFTECH, INC.**<br>a) $35.5 million<br>b) $23.9 million<br>c) 5/31/83<br>d) Coopers & Lybrand | Custom applications software; standard software packages. | Income from contracts is recognized on the percentage of completion basis. Percentage of completion is determined by relating the actual cost of work performed to date for each contract to its current estimated final cost. If a loss is indicated by the estimate to complete a contract, provision is made for the entire loss in the current period. The amounts shown as unbilled costs and fees on contracts in progress represent the excess expenditures (including overhead and general and administrative costs) on contracts, plus profits or less losses recorded thereon, over billings to date.<br><br>Nonrefundable license fees are recorded as revenue upon execution of the license agreement. Royalty fees are recorded as revenue based upon sales by the licensee.<br><br>The Company defers a portion of the revenue received under certain license agreements. The portion deferred represents the Company's estimate of the cost of maintenance support and is amortized into income over the maintenance support period. | Software development costs are charged to expense as incurred. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 51) SOFTWARE AG SYSTEMS GROUP, INC.<br>a) $30 million<br>b) $36 million<br>c) 5/31/83<br>d) Peat, Marwick, Mitchell & Co. | Systems software. | The Company sells, or leases under arrangements equivalent to a sale, a license to use its systems software products. Revenue is recognized when the contract is executed. Ten percent of the price is deferred and reflected in revenues when the product is installed. In contracts where the terms indicate a sale upon the satisfaction of other criteria, such as acceptance upon approval, revenue recognition is delayed until those specific terms are met.<br><br>...maintenance fees received from customers are recorded as revenue when billed. | All costs associated with development and improvement of software products are charged to operations as incurred. [The Company has capitalized license rights to certain software which is being amortized over approximately seven years. The net license is $5.5 million at May 31, 1983.] |
| 52) STERLING SOFTWARE, INC.<br>a) $3.1 million<br>b) $3.5 million<br>c) 9/30/82<br>d) Arthur Young | Systems software; banking applications software. | Revenue and royalties from software system sales are recognized upon delivery of the system and/or acceptance of the product by the customer. Revenues from maintenance and enhancement fees are recognized at the inception of the maintenance period. Related costs of maintenance and enhancement contracts are estimated based upon the length of the contract and accrued in total when the related revenues are recognized. | Purchased software is depreciated on a straight-line basis over five years. Research and development costs relating to designing, developing, and testing new or significantly improved software products are expensed as incurred. |
| 53) SYSTEMATICS, INC.<br>a) $64.4 million<br>b) $52.8 million<br>c) 5/31/83<br>d) Price Waterhouse | Data processing centers for banks; applications software packages for the banking industry. | Data processing revenue is recognized as services are performed. A portion of the revenue from the Company's software license agreements is deferred to provide for costs to be incurred subsequent to the execution of the contract, such as documentation and installation costs and an appropriate profit thereon. Annual maintenance fee revenue associated with software license agreements is recognized on a monthly basis. | Software purchased by the Company and utilized in providing electronic data processing services is capitalized and amortized on a straight-line basis over five years. Costs related to the development and maintenance of the Company's software systems are charged to operations as incurred. [Net amount of $232,900 is indicated in 5/31/83 balance sheet.] |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 54) SYSTEMS & COMPUTER TECHNOLOGY CORPORATION<br>a) $43.8 million<br>b) $14.2 million<br>c) 9/30/83<br>d) Ernst & Whinney | Applications software for higher education and local government markets. | The Company provides computer related services under computing resource management contracts, including provision of Company developed applications software, and in connection with software licensing agreements, for institutions of higher education and local governments and agencies. Work is performed in general under contracts which provide for fees based on a multiple applied to employees' compensation and reimbursements of certain expenses. Such reimbursements are classified as reduction of other operating expenses in the accompanying statements of income. Revenue is accrued as work is performed in accordance with the term of the related contracts. Contracts generally provide for services to be performed by the Company over a period of years. Certain contracts include a billing schedule which provides for billings in the year subsequent to the year in which services are performed. Such contracts provide for interest on the excess of accrued revenues over billings. Other revenues accrued in excess of billings represent amounts attributable to normal large lags between the performance of work and the related subsequent billing.<br><br>The Company also licenses its applications software under agreements which provide for a one-time license fee for which the client receives a perpetual non-transferable, nonexclusive right to use the software. Revenue from one-time license fees is generally recorded upon execution of the licensing agreement. | Not disclosed. [No capitalized software costs are apparent in the balance sheet.] |
| 55) TIME SHARING RESOURCES, INC.<br>a) $13.4 million<br>b) $7.7 million<br>c) 5/31/83<br>d) Peat, Marwick, Mitchell & Co. | Systems and applications software. | Not disclosed. | Research and development costs primarily for the development of software products are charged to operations as incurred. The costs approximated $877,000. $795,000, and $700,000 for the years ended May 31, 1983, 1982, and 1981, respectively. |

| COMPANY<br>a) Annual Revenues<br>b) Total Assets<br>c) Year End<br>d) Auditors | Type of Product | Revenue Recognition Policy | Accounting Policy for Cost of Developed or Acquired Software |
|---|---|---|---|
| 56) **WYLY CORPORATION (University Computing)**<br>a) $165.8 million<br>b) $114.4 million<br>c) 12/31/82<br>d) Arthur Young | Computing services; systems and applications software; "turnkey" minicomputer systems. | [Deferred income.] Deferred income consists primarily of software maintenance and billed software contracts which have not been recognized in revenue. Maintenance revenue is recognized ratably over the maintenance period. Revenue from billed software is recognized when the software is delivered. | Purchased software is amortized by the straight-line method over the period expected to be benefited, which is generally five years. [Balance sheet at 12/31/82 indicates $7.8 million (net) in purchased software.] |

# CHAPTER THREE

# THE SOFTWARE VENDOR QUESTIONNAIRE

## Introduction

Information gathered during the interviews resulted in a number of questions being raised regarding various aspects of software accounting. It appeared that the majority of companies capitalize purchased software costs and expense the costs associated with the construction of software. Some interviewees also expressed concern about the ability to raise capital if software costs were expensed rather than capitalized, and it was thought that a few questions addressing this issue would be fruitful. It was decided that a few questions on the tax aspects of software accounting should also be asked with the hope that additional light could be shed on this shadowy area.

Drafts of questions to be included in this questionnaire, which was to be sent to executives of software vending companies, were constructed based on the interviews. These drafts were then sent to a panel for comment using a modified version of the Delphi technique. Upon receiving panel member comments, a revised list of questions was written and sent to panel members for further comment. This process was repeated several times until it was felt that further mailings to panel members would no longer be of significant value.

Panel members were selected in several ways. All members of the National Association of Accountants' Management Accounting Practices Committee were included, as were members of the NAA Subcommittee on MAP Statement Promulgation. Solicitation for members was also made in Management Accounting and Association Leader, NAA publications having a monthly circulation of 97,000 and 10,000, respectively. Letters were also sent to 371 NAA chapter presidents requesting them to announce the search for panel members at their next chapter meeting. Some of the people who participated in the interviews agreed to serve on the panel, as did all members of AICPA's Task Force on Accounting for the Development and Sale of Computer Software. The panel that reviewed the questionnaire discussed in this chapter consisted of 57 individuals, most of whom had years of exposure to the software accounting policies of at least one company.

The sample for this questionnaire was drawn from 30 known public companies and 368 other software vendors, some of which were public and some privately held. The latter group was selected randomly from Data Sources (Summer, 1982) and the 1982 Data Decisions Software Vendor Directory. All selected firms had annual revenues in excess of $5 million, although some earnings could have been derived from non-software sources. The questionnaire was accompanied by a

cover letter written on NAA stationery addressed to the financial officer. A self-addressed, prepaid envelope was also enclosed. Eighty-eight usable responses were received, for a response rate of 22.1 percent.

## Questionnaire Responses

Below is a summary of the questionnaire responses, along with related discussion. The questionnaire is reproduced in Appendix F.

Question No. 1: What amortization method and time period range are used for financial statement purposes to amortize: (1) purchased software intended for: (a) internal use or (b) resale; (2) internally developed software intended for: (a) internal use or (b) sale?

TABLE 3.1

AMORTIZATION METHODS

QUESTION 1 - VENDORS

| Amortization Method | | Purchased For Internal Use # | Purchased For Internal Use % | Purchased For Resale # | Purchased For Resale % | Internally Constructed For Internal Use # | Internally Constructed For Internal Use % | Internally Constructed For Sale # | Internally Constructed For Sale % |
|---|---|---|---|---|---|---|---|---|---|
| None. All such costs are expensed | | | | | | | | | |
| | Private | 16 | | 25 | | 36 | | 29 | |
| | Public | 14 | | 23 | | 47 | | 46 | |
| | Total | 30 | | 48 | | 83 | | 75 | |
| Straight line method | | | | | | | | | |
| | Private | 19 | | 8 | | 1 | | 4 | |
| | Public | 37 | | 25 | | 4 | | 4 | |
| | Total | 56 | 96.6% | 33 | 82.5% | 5 | 100.0% | 8 | 61.5% |
| Sum of the years digits method | | | | | | | | | |
| | Private | 1 | | - | | - | | - | |
| | Public | - | | - | | - | | - | |
| | Total | 1 | 1.7 | - | | - | | - | |
| Declining balance method | | | | | | | | | |
| | Private | - | | - | | - | | - | |
| | Public | - | | - | | - | | - | |
| | Total | - | | - | | - | | - | |
| Units sold method | | | | | | | | | |
| | Private | 1 | | 4 | | - | | 2 | |
| | Public | - | | 1 | | - | | - | |
| | Total | 1 | 1.7 | 5 | 12.5 | - | | 2 | 15.4 |
| Other | | | | | | | | | |
| | Private | - | | - | | - | | 2 | |
| | Public | - | | 2 | | - | | 1 | |
| | Total | - | | 2 | 5.0 | - | | 3 | 23.1 |
| Total | | | | | | | | | |
| | Private | 37 | | 37 | | 37 | | 37 | |
| | Public | 51 | | 51 | | 51 | | 51 | |
| | Total | 88 | | 88 | | 88 | | 88 | |

TABLE 3.1

AMORTIZATION METHODS

QUESTION 1 - VENDORS

(Continued)

| Amortization Method | Purchased For Internal Use # | Purchased For Internal Use % | Purchased For Resale # | Purchased For Resale % | Internally Constructed For Internal Use # | Internally Constructed For Internal Use % | Internally Constructed For Sale # | Internally Constructed For Sale % |
|---|---|---|---|---|---|---|---|---|
| SUMMARY | | | | | | | | |
| Companies expensing software | | | | | | | | |
| Private | 16 | 43% | 25 | 68% | 36 | 97% | 29 | 78% |
| Public | 14 | 27 | 23 | 45 | 47 | 92 | 46 | 90 |
| Total | 30 | 34 | 48 | 55 | 83 | 94 | 75 | 85 |
| Companies capitalizing software | | | | | | | | |
| Private | 21 | 57 | 12 | 32 | 1 | 3 | 8 | 22 |
| Public | 37 | 73 | 28 | 55 | 4 | 8 | 5 | 10 |
| Total | 58 | 66 | 40 | 45 | 5 | 6 | 13 | 15 |
| Total | | | | | | | | |
| Private | 37 | | 37 | | 37 | | 37 | |
| Public | 51 | | 51 | | 51 | | 51 | |
| Total | 88 | | 88 | | 88 | | 88 | |

ABLE 3.2

AMORTIZATION TIME PERIOD

QUESTION 1 - VENDORS

| Amortization Time Period | Purchased For Internal Use # | Purchased For Internal Use Percent of Total | Purchased For Internal Use Cumulative Percentage | Purchased For Resale # | Purchased For Resale Percent of Total | Purchased For Resale Cumulative Percentage | Internally Constructed For Internal Use # | Internally Constructed For Internal Use Percent of Total | Internally Constructed For Internal Use Cumulative Percentage | Internally Constructed For Sale # | Internally Constructed For Sale Percent of Total | Internally Constructed For Sale Cumulative Percentage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 year | - | - | - | 1 | 2.5% | 2.5 % | - | - | - | 1 | 7.7 % | 7.7 % |
| 1-5 years | - | - | - | 1 | 2.5 | 5.0 | - | - | - | - | - | 7.7 |
| 2 years | - | - | - | 1 | 2.5 | 7.5 | - | - | - | - | - | 7.7 |
| 2-5 years | 3 | 5.2% | 5.2% | 2 | 5.0 | 12.5 | - | - | - | - | - | 7.7 |
| 2-6 years | - | - | 5.2 | - | - | 12.5 | - | - | - | 1 | 7.7 | 15.4 |
| 3 years | 2 | 3.4 | 8.6 | 3 | 7.5 | 20.0 | - | - | - | 2 | 15.4 | 30.8 |
| 3-5 years | 11 | 19.0 | 27.6 | 8 | 20.0 | 40.0 | - | - | - | - | - | 30.8 |
| 3-7 (5 years generally) | 1 | 1.7 | 29.3 | - | - | 40.0 | 1 | 20.0% | 20.0% | - | - | 30.8 |
| 4 years | 1 | 1.7 | 31.0 | 1 | 2.5 | 42.5 | - | - | 20.0 | - | - | 30.8 |
| 4-5 years | - | - | 31.0 | - | - | 42.5 | - | - | 20.0 | 1 | 7.7 | 38.5 |
| 4-6 years | - | - | 31.0 | 1 | 2.5 | 45.0 | - | - | 20.0 | - | - | 38.5 |
| 5 or less | 1 | 1.7 | 32.8 | 1 | 2.5 | 47.5 | - | - | 20.0 | - | - | 38.5 |
| 5 years | 25 | 43.1 | 75.9 | 15 | 37.5 | 85.0 | - | - | 20.0 | 4 | 30.8 | 69.2 |
| 5-7 years | 1 | 1.7 | 77.6 | 1 | 2.5 | 87.5 | 1 | 20.0 | 40.0 | - | - | 69.2 |
| 5-8 years | 1 | 1.7 | 79.3 | 1 | 2.5 | 90.0 | - | - | 40.0 | - | - | 69.2 |
| 5-10 years | 1 | 1.7 | 81.0 | 1 | 2.5 | 92.5 | - | - | 40.0 | - | - | 69.2 |
| 7 year book/5 year ACRS (tax) | - | - | 81.0 | 1 | 2.5 | 95.0 | - | - | 40.0 | - | - | 69.2 |
| 8 years | 2 | 3.4 | 84.5 | - | - | 95.0 | 1 | 20.0 | 60.0 | - | - | 69.2 |
| 10 years | - | - | 84.5 | 1 | 2.5 | 97.5 | - | - | 60.0 | - | - | 69.2 |
| Inventory & expense when sold | - | - | 84.5 | 1 | 2.5 | 100.0 | - | - | 60.0 | - | - | 69.2 |
| Time period not disclosed | 9 | 15.5 | 100.0 | - | - | 100.0 | 2 | 40.0 | 100.0 | 4 | 30.8 | 100.0 |
| Totals | 58 | | | 40 | | | 5 | | | 13 | | |

**SUMMARY**

| | | | | |
|---|---|---|---|---|
| Most frequently used time period | 5 years (43.1%) | 5 years (37.5%) | Three-way tie | 5 years (30.8%) |
| Second most frequently used time period | 3-5 years (19.0%) | 3-5 years (20.0%) | | 3 years (15.4%) |

Question 1 attempted to determine the percentage of software vendor companies that capitalize certain categories of software expenditure. The responses to this question also revealed the amortization methods used and the estimated asset life, by category. Tables 3.1 and 3.2 summarize the responses.

Based on the responses, it can tentatively be concluded that:

1. For software purchased for internal use:

   a. a majority of both private (57%) and public (73%) companies capitalize these software costs;

   b. public companies are more likely to capitalize these costs than are privately held companies;

   c. the vast majority of the capitalized software (75.9% or more) is amortized over 5 years or less;

   d. the straight-line method is by far the most frequently used method (96.6%).

2. For software purchased for resale:

   a. slightly over half (55%) of publicly held companies capitalize this type of software, but less than one in three (32%) privately held companies do so;

   b. public companies are more likely to capitalize these costs than are privately held companies;

   c. the vast majority of the capitalized software (85.0% or more) in this category is amortized over 5 years or less;

   d. the straight-line method is by far the most frequently used method (82.5%).

3. For software constructed for internal use:

   a. the vast majority of both private (97%) and public (92%) companies expense such software;

   b. public companies appear to be slightly more likely to capitalize (8%) than private companies (3%);

   c. the majority of capitalized software (60%) is amortized over 8 years or less;

d. the straight-line method is by far (100.0%) the most frequently used method.

4. For software constructed for sale:

   a. the vast majority of both private (78%) and public (90%) companies expense such software;

   b. private companies appear to be slightly more likely to capitalize (22%) than public companies (10%);

   c. the vast majority of the capitalized software (at least 69.2%) in this category is amortized over 5 years or less;

   d. the straight-line method is by far the most frequently used method (61.5%).

5. Purchased software is capitalized more frequently than is internally constructed software.

6. Public companies are more likely to capitalize software costs than private companies.

7. Most software is amortized over 5 years or less.

8. The straight-line method is by far the most frequently used method.

The analysis of the financial statement footnote information presented in chapter 2 tentatively concluded that the size of a software vending firm bears no relationship to its software accounting policy, although there may be a possibility that smaller companies may have a tendency to capitalize product enhancement costs more often than do larger companies. The information gathered by this questionnaire was unable to confirm or deny this possibility because the questions were not structured to respond to this possibility. However, a correlation between size of company (Question No. 26) and software accounting policy (Question No. 1) was made in the hope that doing so would serve to shed some light on this possible relationship.

TABLE 3.3

SOFTWARE ACCOUNTING POLICY BY COMPANY SIZE

| COMPANY SIZE (Annual Revenues) | PURCHASED FOR | | DEVELOPED FOR | |
|---|---|---|---|---|
| | Internal Use | Resale | Internal Use | Sale |
| More than $50 million | | | | |
| Expense | 18% | 9% | 100% | 91% |
| Capitalize | 82 | 91 | 0 | 9 |
| Between $20-$50 million | | | | |
| Expense | 12% | 0% | 78% | 100% |
| Capitalize | 88 | 100 | 22 | 0 |
| Between $5-$20 million | | | | |
| Expense | 12% | 25% | 90% | 72% |
| Capitalize | 88 | 75 | 10 | 28 |
| Less than $5 million | | | | |
| Expense | 38% | 50% | 96% | 81% |
| Capitalize | 62 | 50 | 4 | 19 |

A direct correlation of the data gathered in the questionnaire with the information obtained in the NAARS search (Chapter 2) is not possible for a variety of reasons. In Chapter 2, the policy of accounting for enhancement costs was analyzed, whereas the presentation made in Table 3.3 analyzes the accounting for purchased and developed software intended for internal use or (re)sale. In Chapter 2, the sample was broken down into two groups, companies with sales in excess of $10 million and companies with sales of less than $10 million. Table 3.3 uses four sales categories, ranging from less than $5 million to more than $50 million. Furthermore, the sample discussed in Chapter 2 included only public companies, whereas the sample in Chapter 3 includes both public and private companies.

Table 3.3 shows that companies have a tendency to capitalize purchased software and expense developed software. For purchased software intended for internal use, the three largest categories capitalize between 82-88 percent of the time, whereas the smallest category capitalizes only 62 percent of the time. While each category is more likely than not to capitalize this type of software, it was expected that the percentage of capitalizing companies would increase as size decreased, if it is assumed that a company's software accounting policy is chosen with the intent of making

it easier to obtain capital, and that smaller companies have a more difficult time raising capital than do larger companies. (This line of reasoning also assumes that bankers will act more favorably toward a company that places its software costs on the balance sheet than to a company that expenses such costs.) The response would seem to refute this assumption. Another assumption is that smaller companies tend to expense whereas larger companies tend to capitalize because smaller companies do not have the resources needed to maintain a complicated accounting system, and expensing is easier than capitalizing. This assumption appears to be borne out, based on the response to purchased software intended for internal use.

Companies in the smaller two categories seem less likely to capitalize purchased software intended for resale than do companies in the larger two categories, although all four categories seem likely to capitalize these costs. Thus, it would appear that the smaller companies tend to follow a software accounting policy based on expedience rather than reasoned accounting principles; expensing is easier than capitalizing, therefore the software is expensed. At least this is true for the 25-50% of the companies that expense this category of software.

The response to the last two categories of software do not bear out this line of reasoning, however. For software developed for internal use, the smallest companies are nearly as likely (96%) as the largest companies (100%) to expense, and it is the second largest category that seems less likely to expense, although 78 percent of this group would also expense. However, for software developed for sale, the second largest group is most likely to expense (100%), and the third group is least likely (72%).

From this lack of consistency, it may be tentatively concluded that company size has no discernible bearing on software accounting policy.

Question No. 2: How are software costs classified on the balance sheet?

TABLE 3.4

BALANCE SHEET CLASSIFICATION OF CAPITALIZED SOFTWARE COSTS

QUESTION 2 - VENDORS

| Classification | Purchased For | | | | Internally Constructed For | | | |
|---|---|---|---|---|---|---|---|---|
| | Internal Use | | Resale | | Internal Use | | Sale | |
| | # | (% First 8 Categories) | # | (% First 8 Categories) | # | (% First 8 Categories) | # | (% First 8 Categories) |
| 1. Specific current asset line item | 2 | 4.2% | 1 | 2.4% | - | | 1 | 5.6% |
| 2. Inventory | - | - | 4 | 9.5 | 1 | 16.7% | 4 | 22.2 |
| 3. Other current asset | 2 | 4.2 | 10 | 23.8 | 1 | 16.7 | 1 | 5.6 |
| 4. Specific non-current line item | 13 | 27.1 | 11 | 26.2 | 1 | 16.7 | 7 | 38.9 |
| 5. Included in fixed assets without separate disclosure | 15 | 31.2 | 4 | 9.5 | 3 | 50.0 | - | - |
| 6. Other noncurrent assets | 10 | 20.8 | 7 | 16.7 | - | - | - | - |
| 7. Footnote disclosure | 4 | 8.3 | 4 | 9.5 | - | - | 5 | 27.8 |
| 8. Other | 2 | 4.2 | 1 | 2.4 | - | - | - | - |
| 9. Not included on balance sheet (from Table 3.1) | 30 | | 48 | | 83 | | 75 | |

Note: Some companies that capitalize software costs gave more than one response in some categories. Others did not respond at all.

**SUMMARY**

| | | | | |
|---|---|---|---|---|
| Most frequently chosen response | Included in fixed assets without separate disclosure | Specific noncurrent asset line item | Included in fixed assets without separate disclosure | Specific noncurrent asset line item |
| Second most frequently chosen response | Specific noncurrent asset line item | Other current asset | Three way tie | Footnote disclosure |

The responses to this question (See Table 3.4) revealed that:

1. Software assets used internally, whether purchased or constructed internally, are most likely to appear on the balance sheet as:

   a. a fixed asset without separate disclosure; or

   b. a specific noncurrent asset line item.

2. Software assets intended for sale, whether purchased or internally constructed, are likely to be listed as a specific noncurrent asset line item.

Question No. 3: Software costs appearing on the balance sheet represent what percent of total assets?

TABLE 3.5

SOFTWARE COSTS APPEARING ON THE BALANCE SHEET
AS A PERCENTAGE OF TOTAL ASSETS

QUESTION 3 - VENDORS

| Percent of Total Assets | Private Companies | | | Public Companies | | | Total Public and Private | | |
|---|---|---|---|---|---|---|---|---|---|
| | # | Percent of Total | Cumulative Percentage | # | Percent of Total | Cumulative Percentage | # | Percent of Total | Cumulative Percentage |
| 0--4.9% | 26 | 70.3% | 70.3% | 35 | 68.6% | 68.6% | 61 | 69.3% | 69.3% |
| 5.0--9.9 | 6 | 16.2 | 86.5 | 8 | 15.7 | 84.3 | 14 | 15.9 | 85.2 |
| 10.0-19.9 | - | - | 86.5 | 5 | 9.8 | 94.1 | 5 | 5.7 | 90.9 |
| 20.0-29.9 | 2 | 5.4 | 91.9 | 1 | 2.0 | 96.0 | 3 | 3.4 | 94.3 |
| 30.0-39.9 | 2 | 5.4 | 97.3 | 1 | 2.0 | 98.0 | 3 | 3.4 | 97.7 |
| 68.0-76.8 | 1 | 2.7 | 100.0 | 1 | 2.0 | 100.0 | 2 | 2.3 | 100.0 |
| | 37 | | | 51 | | | 88 | | |

Software costs appearing on the balance sheet represented less than 5 percent of total assets for about 70 percent of the companies responding to this question. If materiality is defined as 5 percent of total assets, then software assets are a material item for 31 percent of the companies in this survey. If materiality is defined as 10 percent, then the item is material for 15 percent of the companies. For one private and public company, the percentages were 76.8 and 68.0, respectively.

Question No. 4: What costs are capitalized for internally developed software that is intended for (1) internal use; (2) sale?

TABLE 3.6

CATEGORIES OF CAPITALIZED COSTS FOR INTERNALLY DEVELOPED SOFTWARE

QUESTION 4 - VENDORS

| Category of Capitalized Cost | Number of Companies Capitalizing Software Developed for | |
|---|---|---|
| | Internal Use | Sale |
| Feasibility costs | 1 | 2 |
| Design costs | 6 | 9 |
| Coding costs | 8 | 12 |
| Testing costs | 5 | 11 |
| Support costs | - | 2 |
| Service costs | - | - |
| Other | 1 | - |

Responses to this question, summarized in Table 3.6, reveal that the categories of costs most frequently capitalized are design, coding, and testing costs. As was indicated in Table 3.1, software construction costs were more likely to be capitalized if the software was intended for sale than if it were constructed for internal use.

Question No. 5: For how many years has your company been capitalizing software costs?

TABLE 3.7

NUMBER OF YEARS SOFTWARE COSTS CAPITALIZED

QUESTION 5 - VENDORS

| Years | Companies | Percent of Total | Cumulative Percentage |
|---|---|---|---|
| 1--3 | 22 | 46.8% | 46.8% |
| 4--6 | 13 | 27.7 | 74.5 |
| 7--9 | 3 | 6.4 | 80.9 |
| 10-12 | 6 | 12.8 | 93.6 |
| 13-15 | 3 | 6.4 | 100.0 |
| | 47 | | |

Notes

(1) Some companies did not respond to this question.

(2) Although it appears that capitalization of software is a recent phenomenon, it should be kept in mind that many software firms have not been in existence for more than six years.

Responses to this question, summarized in Table 3.7, indicate that the vast majority of the companies in this study have been capitalizing software for 6 years or less. This response might be interpreted to mean that there is a trend toward the capitalization of software costs. However, it should be kept in mind that many software companies have not been in existence for more than 6 years.

Question No. 6: Software costs that are not expensed are capitalized because:

TABLE 3.8

REASONS FOR CAPITALIZATION OF SOFTWARE COSTS

QUESTION 6 - VENDORS

| Reason | Number of Responses |
|---|---|
| An asset has been created | 34 |
| The matching concept | 27 |
| Inclusion improves net income and EPS | 5 |
| Inclusion improves ability to raise capital | 3 |
| IRS regulations on purchased software | 1 |
| Conservatism | 1 |

Notes

(1) Some companies did not respond.

(2) Some companies gave more than one response.

Table 3.8 indicates that the most frequently given reasons for capitalizing software costs are that either an asset has been created or the matching concept requires that costs be matched to the period of expected benefit.

It would appear that the two most frequently given reasons and the last listed response are based on principle rather than expediency. The third and fourth reasons listed reflect self-interest. The fifth reason reveals a misconception, since accounting policy for tax and financial accounting need not be the same in this case.

Question No. 7: Software costs that are not capitalized are expensed because:

TABLE 3.9

REASONS FOR EXPENSING SOFTWARE COSTS

QUESTION 7 - VENDORS

| Reason | Number of Responses |
|---|---|
| Such costs are considered research and development | 50 |
| Uncertainty as to realization makes expensing prudent | 29 |
| R&D cost elements are not easily separated from non-R&D costs, so all costs are expensed | 14 |
| They are expensed for tax purposes, and we want to use the same accounting method per tax and book whenever possible | 9 |
| They are immaterial in amount | 6 |
| Our CPA firm strongly recommends that such costs be expensed. Management is of the opinion that certain software costs should be capitalized | 5 |
| Support and service costs are not considered to be assets | 1 |
| Custom software construction costs are charged to expense as related revenues are invoiced | 1 |
| Compliance with correct accounting pronouncements and interpretations | 1 |
| All internally developed software is expensed. | 1 |

Note: Some companies gave more than one response.

Table 3.9 indicates that the most frequently given reasons for expensing software costs are that such costs are either research and development or there is uncertainty as to realization.

Classifying such costs as research and development would be a mistake in many cases, so it appears that such classification is based on expedience rather than principle. Or perhaps it is based on an incorrect impression of what constitutes research and development. Uncertainty as to realization could be given as a reason based on principle (conservatism) or on expendiency. The other reasons given reflect an amount of expediency rather than principle, or an incorrect interpretation of existing accounting pronouncements.

Question No. 8: If a product intended for sale is found to be unmarketable, but the coding is partially or wholly reusable, and is reused in a new product intended for sale:

TABLE 3.10

ACCOUNTING POLICY FOR REUSED CODING

QUESTION 8 - VENDORS

| Reason | Number of Responses | Percentage |
|---|---|---|
| Previously incurred costs are never borne by the new product. All costs are borne by the original product | 44 | 74.6% |
| Previously incurred costs are apportioned if appropriate and charged to the new product | 11 | 18.6 |
| All previously incurred costs will be borne by the new product | 4 | 6.8 |
| Firms not responding | 29 | |
| | 88 | |

Responses to this question (See Table 3.10) reveal that the vast majority of companies (75%) allocate the coding costs of a product failure to that product even though the code may later be used in another product. This treatment seems to make sense, because it is at least questionable whether the code has any future economic benefit at that point in time.

Question No. 9: How are development costs shared between an internally used product and a product developed for sale that uses all or a substantial portion of the code?

TABLE 3.11

ACCOUNTING FOR SHARED DEVELOPMENT COSTS

QUESTION 9 - VENDORS

| Reason | Number of Responses | Percentage |
|---|---|---|
| All costs are borne by the product intended for sale | 22 | 53.7% |
| All costs are borne by the internally used product | 7 | 17.1 |
| Costs are apportioned | 5 | 12.2 |
| Costs are apportioned at current rather than historical cost | 4 | 9.8 |
| Costs are shared equally between the products | 3 | 7.3 |
| Firms not responding | 47 | |
| | 88 | |

Table 3.11 shows that software construction costs that are incurred for a program that is both used internally and sold are generally allocated exclusively to the product intended for sale.

Question No. 10: Does your company provide reserves for future maintenance costs incurred in fulfilling warranty obligations? If "yes," how are such reserves estimated?

TABLE 3.12

ACCOUNTING FOR FUTURE MAINTENANCE COSTS

QUESTION 10 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| Yes | 20 | 24.1% |
| No | 63 | 75.9 |
| Firms not responding | 5 | |
| | 88 | |

Table 3.12 reveals that the vast majority of companies (76%) do not provide reserves for future maintenance costs incurred in fulfilling warranty obligations. In cases where reserves were estimated, the estimation methods used included:

1. prior year history
2. percentage of revenue
3. future expected returns for failure within warranty period
4. past experience plus previous 90 days sales
5. estimated labor hours to be expended
6. project by project basis
7. proration of revenues plus specific cost evaluation
8. pure guess -- new company with no previous history
9. deferral of recognition of maintenance revenue rather than establishment of a reserve for future maintenance costs.

Question No. 11: Do you think the accounting treatment for purchased software should be different than the accounting treatment for comparable internally developed software? If "yes," why?

TABLE 3.13

ACCOUNTING TREATMENT OF SOFTWARE COSTS

QUESTION 11 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| Yes | 30 | 33.7% |
| No | 50 | 56.2 |
| No opinion | 9 | 10.1 |
| Firms not responding | 1 | |
| Firms giving two responses | (2) | |
| | 88 | |

Table 3.13 shows that a clear majority of respondents (56%) do not think that the accounting treatment for purchased software should be different than that for internally constructed software. For those respondents indicating that there should be different accounting treatment, the main reasons given were:

1. Costs associated with internally developed software are not as easily identified and are subject to judgment rather than unequivocal evidence.

2. Specific costs are more readily identified for purchased software and its specific use/life can be matched to product sales.

3. Purchased software has a predetermined value (purchase price) and should be an asset, whereas internally constructed software is ever-changing and is a period expense.

4. It is too difficult to allocate costs and resources and to identify costs associated with software construction. Capitalizing internally constructed software opens the door to manipulation of income by over-allocating costs to capitalized software.

5. Purchased software has an established market value, whereas internally constructed software costs are at risk.

6. Purchased software products have generally passed technical marketability and user testing prior to purchase. Future use and benefit are much more likely than for constructed software.

7. It is extremely difficult to separate R&D expenses for internally constructed software.

8. Purchased software is generally a standard product, whereas internally constructed software is custom.

It appears that most of these reasons are based on expedience rather than principle.

Question No. 12: The inability to include software costs on the balance sheet adversely affects your ability to raise capital.

TABLE 3.14

SOFTWARE ACCOUNTING POLICY AND ITS EFFECT ON THE ABILITY TO RAISE CAPITAL

QUESTION 12 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| Private Companies | | |
| Agree | 12 | 36.4% |
| Disagree | 17 | 51.5 |
| No opinion | 4 | 12.1 |
| Firms not responding | 4 | |
| | 37 | |
| Public Companies | | |
| Agree | 9 | 17.0% |
| Disagree | 37 | 69.8 |
| No opinion | 7 | 13.2 |
| | 53 | |
| Public and Private Combined | | |
| Agree | 21 | 24.4% |
| Disagree | 54 | 62.8 |
| No opinion | 11 | 12.8 |
| Firms not responding | 4 | |
| | 90 | |

Note: Some companies gave two responses.

Table 3.14 summarizes the views of the private and public companies regarding the effect of software accounting policy on the ability to raise capital.

A slight majority of private companies disagreed with the statement. However, the public companies disagreed with the statement by a margin of 4 to 1.

For those respondents who agreed with the statement, some of the reasons given were:

1. Companies that expense software construction costs are placed in an inferior position to those which capitalize such costs, especially in start-up situations.

2. Income producing assets need to be reflected on the balance sheet in order to fairly present the valuation of the company. A company would be grossly undervalued if these costs were expensed immediately.

3. Banks treat financial statements very literally.

4. Expensing software costs adversely affects current earnings.

5. Privately owned companies and companies that are not a subsidiary of a major conglomerate are at a definite disadvantage if they expense software costs.

Those who disagreed did so for the following reasons:

1. Ability to raise capital is impacted by future revenues from software development rather than the current balance sheet. Expensing software construction costs actually improves future profitability.

2. Other indicia of financial strength and leverage (e.g., revenue projections, business plan, etc.) are more meaningful than software accounting policy.

3. The amounts involved are not material (but, see comments to Question 3).

4. The investment community offers a different multiple to companies that capitalize software. Bankers tend to delete software from the balance sheet.

5. The ability to raise capital is a function of profit and loss and growth experience. (But how is profit and loss affected by a firm's software accounting policy?)

6. The majority of assets on many vendor company balance sheets consists of cash and receivables.

7. The market is sophisticated enough to know the software business. Providers of capital to the software industry recognize special situations.

8. The cost of software on a balance sheet usually has no relationship to its value.

This question grew out of the interviews. Several interviewees mentioned that inability to place software costs on the balance sheet made it more difficult for their companies to obtain capital. Responses to this question seemto confirm their view. As a result of the response received to this question, the decision was made to probe this topic in more depth. Part II of this thesis explores the relationship between software accounting policy and the ability to raise capital. Studies on this issue have been made by Abdel-Khalik ["The Economic Effects on Lessees of FASB Statement No. 13, Accounting for Leases", (Stamford, CT:

FASB, 1981)] and others, but an in-depth study on the effects of software accounting policy on securities prices was thought to be inappropriate due to the small population of public companies and the extent to which security prices of software vendors is affected by other high profile parameters. (See Chapter 11.)

Question No. 13: The inability to include software costs on the balance sheet adversely affects the interest rate your company must pay to obtain capital.

TABLE 3.15

SOFTWARE ACCOUNTING POLICY AND ITS EFFECT ON THE INTEREST RATE ON BORROWED CAPITAL

QUESTION 13 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| Private Companies | | |
| Agree | 4 | 10.8% |
| Disagree | 24 | 64.9 |
| No opinion | 9 | 24.3 |
| | 37 | |
| Public Companies | | |
| Agree | 5 | 9.8% |
| Disagree | 38 | 74.5 |
| No opinion | 8 | 15.7 |
| | 51 | |
| Public and Private Combined | | |
| Agree | 9 | 10.2% |
| Disagree | 62 | 70.5 |
| No opinion | 17 | 19.3 |
| | 88 | |

Table 3.15 shows that the vast majority of both private and public companies do not think the interest rate they must pay on borrowed capital is adversely affected by the inability to include software costs on the balance sheet. A similar question was posed to commercial lending officers to determine whether a company's software accounting policy affected the interest rate it must pay. (See Chapters 9 and 10.)

Question No. 14: If all software development costs were expensed rather than capitalized, the level of these expenditures for software companies would have to be much lower; companies would be forced to put a cap on investment in new product programs in order to reflect good earnings performance to shareholders.

TABLE 3.16

SOFTWARE ACCOUNTING POLICY AND INVESTMENT

QUESTION 14 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| Private Companies | | |
| Agree | 18 | 51.4% |
| Disagree | 16 | 45.7 |
| No opinion | 1 | 2.9 |
| Firms not responding | 2 | |
| | 37 | |
| Public Companies | | |
| Agree | 17 | 33.3% |
| Disagree | 21 | 41.2 |
| No opinion | 13 | 25.5 |
| | 51 | |
| Public and Private Combined | | |
| Agree | 35 | 40.7% |
| Disagree | 37 | 43.0 |
| No opinion | 14 | 16.3 |
| Firms not responding | 2 | |
| | 88 | |

Table 3.16 summarizes the view of private and public companies on the relationship of software accounting policy on investment and growth. A small majority of private companies (51.4%) feel that investment and growth would be inhibited by requiring software construction costs to be expensed rather than capitalized. A substantial minority of public companies (33.3%) feel the same way. Overall, the sample firms are about evenly divided on the issue, with 40.7 percent agreeing, 43.0 percent disagreeing and 16.3 percent having no opinion.

Because of the response to this question, it appeared that a substantial number of software company executives are of the opinion that a policy of expensing software costs adversely affects their company in areas other than bank lending. To probe this point deeper, it was decided to ask a group of financial analysts for their opinions. The results of this probe are reported in Chapter 11.

Question No. 15: If all software development costs were expensed rather than capitalized, the price of your company's stock, if publicly traded, would be adversely affected.

TABLE 3.17

THE EFFECT OF SOFTWARE ACCOUNTING POLICY
ON STOCK PRICE

QUESTION 15 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| Private Companies | | |
| Agree | 17 | 45.9% |
| Disagree | 18 | 48.6 |
| No opinion | 2 | 5.4 |
| | 37 | |
| Public Companies | | |
| Agree | 16 | 31.4% |
| Disagree | 32 | 62.7 |
| No opinion | 3 | 5.9 |
| | 51 | |
| Public and Private Combined | | |
| Agree | 33 | 37.5% |
| Disagree | 50 | 56.8 |
| No opinion | 5 | 5.7 |
| | 88 | |

Table 3.17 shows that private companies are about evenly split on the question of whether expensing software adversely affects stock price. Public companies disagree by a two to one margin. Overall, a majority of companies (56.8%) disagrees that expensing software adversely affects stock price. This question is also raised in Chapter 11.

Question No. 16: If all software development costs were expensed rather than capitalized, your company's long-term growth would be adversely affected.

TABLE 3.18

THE EFFECT OF SOFTWARE ACCOUNTING POLICY ON LONG-TERM GROWTH

QUESTION 16 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| **Private Companies** | | |
| Agree | 12 | 32.4% |
| Disagree | 24 | 64.9 |
| No opinion | 1 | 2.7 |
| | 37 | |
| **Public Companies** | | |
| Agree | 8 | 16.0% |
| Disagree | 38 | 76.0 |
| No opinion | 4 | 8.0 |
| Firms not responding | 1 | |
| | 51 | |
| **Public and Private Combined** | | |
| Agree | 20 | 23.0% |
| Disagree | 62 | 71.3 |
| No opinion | 5 | 5.7 |
| Firms not responding | 1 | |
| | 88 | |

Table 3.18 shows that the vast majority of both private and public firms do not think that expensing software construction costs adversely affects long-term growth. Private and public companies disagreed with the statement by ratios of two to one and five to one, respectively, which is even greater than the disagreement rate for Question 14, which asked basically the same question. On the other hand, a substantial minority of private firms (32.4%) do think that expensing software construction costs adversely affects long-term growth.

An accounting policy that adversely affects growth has political implications. American software companies are feeling the sting of competition from overseas, particularly Japan, and a software accounting policy that helps foreign competitors is seen as intolerable to a number of the executives that were interviewed in the course of this study. Members of the Financial Accounting Standards Board have been made aware of this possibility and are deeply concerned, because the individual members would like to come up with a software accounting policy recommendation that is devoid of politics.

Question No. 17: Your company sometimes purchases software that could be internally developed because it is easier to justify placing purchased software costs on the balance sheet.

TABLE 3.19

PURCHASING SOFTWARE IN ORDER TO PLACE ON BALANCE SHEET

QUESTION 17 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| Private Companies | | |
| Agree | 2 | 5.7% |
| Disagree | 29 | 82.9 |
| No opinion | 4 | 11.4 |
| Firms not responding | 2 | |
| | 37 | |
| Public Companies | | |
| Agree | 1 | 2.1% |
| Disagree | 45 | 93.7 |
| No opinion | 2 | 4.2 |
| Firms not responding | 3 | |
| | 51 | |
| Public and Private Combined | | |
| Agree | 3 | 3.6% |
| Disagree | 74 | 89.2 |
| No opinion | 6 | 7.2 |
| Firms not responding | 5 | |
| | 88 | |

This question was included because it was discovered, during the course of the interviews, that some companies choose the method of obtaining software based on its effect on the balance sheet and income statement. There is sometimes a tendency to classify software as an asset in order to avoid placing software costs in the income statement, and there is widespread feeling that costs expended for the purchase of software are easier to justify for asset treatment than are costs for the construction of software. (See Questions 6 and 7.) Some firms, it is argued, resort to the R&D partnership vehicle in order to capitalize costs that would otherwise be expensed as software construction costs.

Table 3.19 shows that almost 90 percent of the companies included in the survey disagree with the view that a company will purchase software rather than construct it in order to justify its inclusion in the balance sheet.

Question No. 18: If company policy were to expense all software costs as incurred rather than to capitalize a portion of software costs, my company's net income would be reduced by ____ %.

TABLE 3.20

PERCENT REDUCTION IN NET INCOME RESULTING FROM EXPENSING RATHER THAN CAPITALIZING SOFTWARE COSTS

QUESTION 18 - VENDORS

| | Private Companies | | | Public Companies | | | Total Public and Private | | |
|---|---|---|---|---|---|---|---|---|---|
| Percent of Total Assets | # | Percent of Total | Cumulative Percentage | # | Percent of Total | Cumulative Percentage | # | Percent of Total | Cumulative Percentage |
| 0 - 4.9% | 25 | 69.4% | 69.4% | 43 | 84.3% | 84.3% | 68 | 78.2% | 78.2% |
| 5.0 - 9.9 | 3 | 8.3 | 77.8 | - | - | 84.3 | 3 | 3.4 | 81.6 |
| 10.0--19.9 | 1 | 2.8 | 80.6 | 5 | 9.8 | 94.1 | 6 | 6.9 | 88.5 |
| 20.0--29.9 | - | - | 80.6 | 1 | 2.0 | 96.1 | 1 | 1.1 | 89.7 |
| 30.0--49.5 | 3 | 8.3 | 88.9 | - | - | 96.1 | 3 | 3.4 | 93.1 |
| 50.0--99.9 | - | - | - | 2 | 3.9 | 100.0 | 2 | 2.2 | 95.4 |
| 100.0-200.0 | 4 | 11.1 | 100.0 | - | | | 4 | 4.6 | 100.0 |
| Firms not responding | 1 | | | - | | | 1 | | |
| | 37 | | | 51 | | | 88 | | |

As is indicated in Table 3.20, the vast majority of private (69.4%) and public companies (84.3%) would have a less than 5 percent reduction in net income if software costs that are now being capitalized would have been expensed instead. However, this fact does not mean that software expenditures are immaterial for the vast majority of software vendor companies, because many firms are presently expensing rather than capitalizing most or all of their software costs anyway. Even if this factor is taken into consideration, 30.6 percent of private companies and 15.7 percent of public companies would have a reduction in net income of at least 5 percent, which may be considered a material reduction. If materiality is defined as a 10 percent reduction in net income, then the percentages for private and public companies would be 22.2 percent and 15.7 percent, respectively. It is safe to say that software expenditures as a percentage of net sales is significant for all software vendors, as such costs are among the major costs incurred by a software vendor.

Question No. 19: Has your company ever used an R&D partnership, limited partnership or other off balance sheet arrangement in connection with software development? If "yes", what were your reasons for using such an arrangement?

TABLE 3.21

USE OF R&D PARTNERSHIPS AND OTHER OFF BALANCE SHEET ARRANGEMENTS

QUESTION 19 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| **Private Companies** | | |
| Yes | 2 | 5.6% |
| No | 34 | 94.4 |
| No opinion | - | |
| Firms not responding | 1 | |
| | 37 | |
| **Public Companies** | | |
| Yes | 4 | 7.8% |
| No | 45 | 88.2 |
| No opinion | 2 | 3.9 |
| | 51 | |
| **Public and Private Combined** | | |
| Yes | 6 | 6.9% |
| No | 79 | 90.8 |
| No opinion | 2 | 2.3 |
| Firms not responding | 1 | |
| | 88 | |

TABLE 3.22

REASON FOR OFF BALANCE SHEET FINANCING

QUESTION 19 - VENDORS

| Reason | Software Costs as Percent of Total Assets (Q-3) | Reduction in Net Income (Q-18) | Public or Private (Q-27) |
|---|---|---|---|
| In order to fund software development without severely reducing earnings | 39% | 70% | Public |
| To transfer risks to the partnership and to provide an easier method (purchased software concept) to capitalize software construction costs | 21% | 200% | Public |
| Financing without giving up equity - only | 1% | 0% | Public |
| Risk sharing; lower cost of R&D | 3% | 0% | Public |
| Funding of R&D costs | 3% | 0% | Private |
| To keep our investment in software development off the balance sheet | 2% | 0% | Public |

Note: Six companies answered "yes" to Question 19. The reasons for using off balance sheet financing are given here, along with their responses to Question 3, 18 and 27.

As is seen from Table 3.21, more than 90 percent of the firms included in the survey did not use R&D partnerships or other off balance sheet arrangements in connection with software development expenditures.

Table 3.22 shows the reasons given and other data for the six firms that answered "yes" to Question 19. The main reasons given were either to boost earnings or to spread risks and obtain favorable financing terms. Five of the six companies using off balance sheet financing are publicly held.

Question No. 20: On which categories of software is the investment tax credit or R&D tax credit taken?

TABLE 3.23

CATEGORIES OF SOFTWARE COSTS
UPON WHICH TAX CREDITS ARE TAKEN

QUESTION 20 - VENDORS

| Category | Investment Tax Credit | | R & D Tax Credit | |
|---|---|---|---|---|
| | # | Percentage | # | Percentage |
| Internally developed software intended for sale | 2 | 2.3% | 64 | 72.7% |
| Internally developed software intended for internal use | 3 | 3.4 | 30 | 34.1 |
| Purchased software intended for resale | 17 | 19.3 | 10 | 11.4 |
| Purchased software intended for internal use | 34 | 38.6 | 6 | 6.8 |

Questions 20-24 refer to tax-related areas that came to light in the course of the interviews. A preliminary view of how these areas are treated was formed by the end of the interviews, and it was decided to probe this area more fully by asking software executives how their companies treat the various tax aspects of software. In some cases, the software company executive did not know how to answer these questions, which were then referred to the company's tax expert for reply.

Table 3.23 indicates the responses to the question, "On which categories of software is the investment tax credit or R&D tax credit taken?" A non-response might be due to the fact that: (1) the tax credit was not taken, (2) the company filling out the questionnaire did not incur all four categories of software costs, or (3) the person filling out the questionnaire did not know the answer and the tax manager was out of town. The computed percentages used 88 as a denominator, the number of companies that completed the questionnaire. The percentages are conservatively stated because of the limiting factors mentioned above.

The most frequently taken credit was the R&D tax credit, for internally constructed software intended for sale, which was taken by at least 72.7 percent of the companies surveyed. The reason why more companies did not take advantage of the available tax credits is not known, although it should be mentioned that many software expenditures do not qualify for either tax credit.[1]

Question No. 21: Is the same software item ever: (1) Capitalized for financial statement purposes and expensed for tax purposes? (2) Capitalized for tax purposes and expensed for financial statement purposes?

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[1]This low response rate for the investment tax credit seems strange in light of the fact that the Internal Revenue Service and at least one court case allow the investment tax credit to be taken in some instances. See Rev. Proc. 69-21, 1969-2 C.B. 303; Rev. Rul. 71-177, 1971-1 C.B. 5; Texas Instruments v. United States, 407 F. Supp. 1326 (N.D. Tex. 1976), rev'd. 551 F.2d 599, 39 AFTR2d 77-1383 (5th Cir. 1977). See Case No. 38, Appendix C.

TABLE 3.24

COMPARISON OF TAX AND FINANCIAL STATEMENT TREATMENT OF SOFTWARE COSTS

QUESTION 21 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| A. Capitalized for financial statement purposes and expensed for tax purposes? | | |
| Yes | 8 | 16.3% |
| No | 41 | 83.7 |
| Firms not responding | 39 | |
| | 88 | |
| B. Capitalized for tax purposes and expensed for financial statement purposes? | | |
| Yes | 1 | 1.3% |
| No | 75 | 98.7 |
| Firms not responding | 12 | |
| | 88 | |

TABLE 3.25

REASONS FOR DIFFERING BOOK AND TAX TREATMENT

Reasons for Capitalizing for Financial Statement Purposes and Expensing for Tax Purposes

1. For twelve years the company expensed software enhancement costs for both books and tax. In 1980, we changed the book method. Obviously, we did not want to make a change to the tax method.

2. Lower tax liability versus need to raise capital and show "financial strength."

3. Tax definition of R&D is different than accounting definition of an asset. (See FASB-2, Interpretation-6, Technical Bulletin 79-2, and other accounting literature for treatment of software construction costs.)

4. The Internal Revenue Service, for many years, has permitted the expensing or deferral of the costs of developing computer software, at the option of the taxpayer, in accordance with the rules applicable to research or experimental expenditures under Section 174 of the Internal Revenue Code. See Rev. Proc. 69-21, 1969-2 C.B. 303.

5. Significant software is capitalized for financial statement purposes to improve cash flow.

6. To maximize the cash position of the company and to take advantage of the alternative treatments available to the company.

7. Per IRS regulations, software development is classified as an R&D expense.

8. This policy has been in place for years -- primary reason is to lower taxable income.

Reason for Capitalizing for Tax Purposes and Expensing for Financial Statement Purposes

All packages are capitalized for tax purposes. Other software costs are expensed per tax. Immaterial packages are expensed per books but capitalized per tax.

Table 3.24 shows that the vast majority of companies treat software expenditures the same for tax and financial statement purposes. Table 3.25 summarizes the reasons for different treatments.

While the vast majority of companies treat the same software item the same way for both financial and tax purposes, a significant minority have different treatments in some cases. Many firms did not respond to this question. Perhaps the high nonresponse rate is because many firms expense all software for both tax and financial reporting purposes.

Question No. 22: If software is capitalized for both financial statement and tax purposes, are the amortization method and time period used the same? If "no", please use this space to describe why different treatments are used for tax and financial accounting purposes.

TABLE 3.26

COMPARISON OF AMORTIZATION METHOD AND
TIME PERIOD FOR FINANCIAL STATEMENT AND TAX PURPOSES

QUESTION 22 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| Yes | 36 | 73.5% |
| No | 13 | 26.5 |
| Firms not responding | 39 | |
| | 88 | |

Reasons for Different Tax and Financial Statement Treatment

1. Amortization period for financial statements approximates useful life of the asset. The limitation on useful life is statutorily dictated not to exceed five years.

2. For purchased software, the straight-line method is used for financial reporting and the accelerated cost recovery system (ACRS) is used on the tax return.

3. Seven years straight-line for book purposes (useful life); five years ACRS for tax purposes

Reasons for Different Tax and Financial Statement Treatment

4. Straight-line amortization initially used for both tax and financial statements would have resulted in distortion of gross profit (poor matching of revenue and expense). The company switched methods for financial statement purposes when the effect of the change was not material.

5. Different methods are used in order to lower tax liability and to show financial strength on the financial statements in order to make it easier to raise capital.

6. Revenue ruling mandates tax treatment.

7. For tax treatment some software (eligible for ITC) is treated as Section 1245 property and depreciated over five years (ACRS).

8. ACRS per tax return; straight-line or declining balance per financial statements.

9. All federal tax amortization is calculated using the ACRS percentage method.

Table 3.26 shows that the vast majority of firms that capitalize software for both financial statement and tax purposes use the same amortization method and time period. However, for a significant minority of firms, there are different treatments. Many firms did not respond to this question, presumably, because they expense all software costs.

Question No. 23: How is software classified: (1) for federal tax purposes? (2) for state sales/use tax purposes? (3) for personal property tax purposes?

TABLE 3.27

CLASSIFICATION OF SOFTWARE FOR TAX PURPOSES

QUESTION 23 - VENDORS

| | Tangible | | Intangible | |
|---|---|---|---|---|
| | Number of Responses | Percentage | Number of Responses | Percentage |
| For federal tax purposes | 23 | 41.1% | 33 | 58.9% |
| For state sales/use tax purposes | 16 | 28.1 | 41 | 71.9 |
| For personal property tax purposes | 10 | 19.2 | 42 | 80.8 |

Notes: (1) Many companies did not respond to this question.
(2) Some companies gave more than one response for some categories.

The majority of companies classify software as intangible for both federal and state tax purposes, although for a significant minority of companies it may be tangible. The tax treatment for sales, use and property tax is determined on a state by state basis, so it is possible that a software firm may have a software item taxed as tangible personal property in one state, but have an identical item exempt from tax if sold in another state because that state classifies it as intangible. In some states, software sold in the form of a magnetic tape or disk is taxed as tangible, whereas the same software, if delivered over telephone wires or by satellite, would be intangible and exempt from tax. In some states, custom software is exempt from tax, whereas "canned" or "off the shelf" software is taxable.

Question No. 24: Has your company been a party to litigation involving the sales taxability of software in the last three years? If "yes", which state(s)? What were the issues?

TABLE 3.28

LITIGATION INVOLVING SALES TAXABILITY OF SOFTWARE

QUESTION 24 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| Yes | 8 | 9.3% |
| No | 78 | 90.7 |
| Firms not responding | 2 | |
| | 88 | |

| State | Issue |
|---|---|
| Wisconsin<br>Oklahoma<br>Massachusetts | Although not a party to litigation, the company is supporting the litigation efforts of others. The company believes that software is intangible. These states think otherwise. |
| California<br>Tennessee | Whether sales tax should be paid on software license and maintenance. |
| Maryland<br>Missouri<br>Wisconsin | Whether statutes specifically identified software as being subject to sales/use tax. |

TABLE 3.28

LITIGATION INVOLVING SALES TAXABILITY
OF SOFTWARE

QUESTION 24 - VENDORS

(Continued)

| State | Issue |
|---|---|
| California | No issues stated. |
| California | California's position is that, if the sales tax is applied to sales in other states, and if the original package and documentation come into California, then all copies are taxable in California. |
| California | Whether certain software is "custom" or "canned," the latter being subject to sales tax. |
| California | Whether custom programs were subject to state sales tax. The company was successful in showing that there was no tangible transfer to the customers (computer was programmed directly), hence sales tax was not appropriate. |
| Not Given | No issue stated. |

Table 3.28 shows that more than 90 percent of the firms responding to this question have not been involved in software sales tax litigation in the last three years. Of the seven companies that have been parties to litigation (eight companies checked the "yes" box -- one non-litigant is assisting in the litigation efforts of others), at least five cases involve California.

Question No. 25: Which public accounting firm signs the opinion for your company's financial statements?

TABLE 3.29

PUBLIC ACCOUNTING FIRM

QUESTION 25 - VENDORS

| Firm | Private Companies | | Public Companies | | Total Companies | |
|---|---|---|---|---|---|---|
| | Number of Responses | Percentage | Number of Responses | Percentage | Number of Responses | Percentage |
| *Arthur Andersen & Company | 5 | 17.9% | 5 | 9.8% | 10 | 12.7% |
| *Arthur Young & Company | 4 | 14.3 | 6 | 11.8 | 10 | 12.7 |
| *Coopers & Lybrand | 2 | 7.1 | 6 | 11.8 | 8 | 10.1 |
| *Deloitte Haskins & Sells | 1 | 3.6 | 3 | 5.9 | 4 | 5.1 |
| *Ernst & Whinney | 2 | 7.1 | 10 | 19.6 | 12 | 15.2 |
| Main Hurdman | 1 | 3.6 | - | - | 1 | 1.3 |
| *Peat, Marwick, Mitchell & Company | 3 | 10.7 | 7 | 13.7 | 10 | 12.7 |
| *Price Waterhouse | 3 | 10.7 | 11 | 21.6 | 14 | 17.7 |
| Seidman & Seidman | - | - | - | - | - | - |
| *Touche Ross & Company | 1 | 3.6 | 1 | 2.0 | 2 | 2.5 |
| None | 3 | | - | | 3 | |
| Other | 6 | 21.4 | 2 | 3.9 | 8 | 10.1 |
| Firms not responding | 6 | | - | | 6 | - |
| | 37 | | 51 | | 88 | |

*Indicates "Big 8" Firm

Table 3.29 shows which accounting firm is the principal auditor. Price Waterhouse audits more publicly held companies than any of the other firms, followed closely by Ernst & Whinney. Of the "big 8" firms, Touche Ross & Co. audits the fewest public firms.

Arthur Andersen & Co. heads the list for private firms, followed closely by Arthur Young & Co. Overall, Price Waterhouse audited the most companies followed by Ernst & Whinney. A similar result was found in Chapter 2.

Question No. 26: Total software related revenues for the most recent fiscal year were:

TABLE 3.30

COMPANY SIZE

QUESTION 26 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| **Private Companies** | | |
| More than $50 million | 2 | 5.4% |
| Between $20-$50 million | 4 | 10.8 |
| Between $5-$20 million | 15 | 40.5 |
| Less than $5 million | 16 | 43.2 |
| | 37 | |
| **Public Companies** | | |
| More than $50 million | 12 | 24.0% |
| Between $20-$50 million | 6 | 12.0 |
| Between $5-$20 million | 16 | 32.0 |
| Less than $5 million | 16 | 32.0 |
| Firms not responding | 1 | |
| | 51 | |
| **Public and Private Combined** | | |
| More than $50 million | 14 | 16.1% |
| Between $20-$50 million | 10 | 11.5 |
| Between $5-$20 million | 31 | 35.6 |
| Less than $5 million | 32 | 36.8 |
| Firms not responding | 1 | |
| | 88 | |

Table 3.30 shows the breakdown of the sample companies by size, measured in terms of software related revenues. More than 72 percent of the sample was drawn from companies having annual software related revenues of $20 million or less. Sixteen percent, or 14 companies, had software related revenues of more than $50 million. As expected, private firms generally have less sales than public companies, but 2 of the private firms had sales in excess of $50 million, which would rank them in the top quarter of publicly held software companies.

Question No. 27: The company is: privately held? publicly held?

TABLE 3.31

PRIVATELY HELD AND PUBLICLY HELD COMPANIES
QUESTION 27 - VENDORS

| | Number of Responses | Percentage |
|---|---|---|
| Privately Held | 37 | 42.0% |
| Publicly Held | 51 | 58.0 |
| | 88 | |

Table 3.31 shows the breakdown of the sample according to ownership. Fifty-one of the firms (58%) were publicly held. The other thirty-seven (42%) were privately held.

This sample was heavily weighted in favor of publicly held firms. Although there are approximately 4,000 privately held software companies and less than 100 publicly held software firms, the majority of respondents were publicly held. This response is due to the sample selection method chosen. All publicly held software firms that could be identified were sent a questionnaire. Only a relatively small percentage of privately held software firms received a questionnaire, and these firms were chosen on the basis of sales volume.

Summary

A comparison of data gathered by reading financial statement information (Chapter 2) and questionnaire responses (Chapter 3) reveals some interesting relationships. Responses to the questionnaire (Table 3.1) reveal that 73 percent of public companies capitalize purchased software to be used internally, and 55 percent capitalize purchased software intended for resale. Financial statement data (Table 2.5) reveals that 100 percent of the 25 companies disclosing accounting treatment of purchased software capitalize such

costs. This difference could be due to the fact that not all companies disclose their policy of accounting for purchased software. Perhaps nondisclosure can be interpreted to mean "expensed". The data gathered by questionnaire is probably more accurate, since financial statements are summaries and provide an incomplete picture of what is actually going on in the business.

Table 3.1 indicates that 92 percent of all public companies responding to the survey expense internally constructed software that is used internally. A similar percentage (90%) of internally constructed software intended for sale is expensed. Financial statement data (Table 2.5) revealed that 91 percent of all companies disclosing such costs expense software construction costs, a percentage that is nearly identical to that obtained in the mail questionnaire.

A comparison of auditors in Chapter 2 (Table 2.3) and Chapter 3 (Table 3.29) reveals some interesting similarities and differences. Reading the financial statements leads one to believe that Price Waterhouse audits more software companies than does any other accounting firm (17.9%), with Peat, Marwick, Mitchell & Company coming in a close second at 14.3 percent. Questionnaire responses confirmed this view to some extent. In the questionnaire survey, Price

Waterhouse came in first (21.6%), followed closely by Ernst & Whinney (19.6%). Peat, Marwick, Mitchell & Company came in third with 13.7 percent.

The questionnaire provided extra evidence that companies tend to capitalize purchased software and expense internally developed software. This policy was noticed and commented upon in Chapter 2. In Chapter 2, it appeared that there is no relationship between company size and software accounting policy, although there appeared to be a slight tendency for smaller companies to capitalize enhancement costs. The questionnaire responses seemed to indicate that there is no relationship between company size and software accounting policy, so perhaps the perceived enhancement cost treatment was a false perception.

Reasons given for capitalizing or expensing seemed to be based on a mixture of expediency and reasoned principle, with a bit of short-term self-interest thrown in for good measure. There seemed to be some concern that a policy of expensing would have adverse effects on the ability to expand, borrow money or increase stock price, although these views were those of a minority. Companies seemed to have widely differing tax policies, which could be due to uncertainty as to the proper treatment of software for tax pur-

poses. Other possibilities include a variety of individual facts and circumstances. Companies that classify software as intangible could do so because of the particular state they happen to be doing business in, or it could be due to a number of other factors. Perhaps more companies do not take advantage of the federal tax credits because the particular software in question does not lend itself to the tax credits. Based on the interviews, it would appear that some of the inability to take full advantage of the tax law is due to a combination of ignorance of the tax laws (which change constantly) and the hesitancy to take risks in uncertain cases that might be uncovered upon audit. Pressure from the company's auditor undoubtedly plays a role as well. The tax aspects of software are covered in depth in Part III of this thesis.

# CHAPTER FOUR

# A RECONCILIATION OF CHAPTERS 2 AND 3

Upon completion of the interviews it appeared that, in many cases, a company's software accounting policy was based on expediency rather than principled reasoning. A number of new questions were raised in my own mind as a result of these interviews. I became aware that the accounting policy for internally constructed software was often different from the policy for purchased software, and I constructed a number of questions in the vendor questionnaire to find out more about this point. I also learned that software expenditures were not always slotted in the same section of the balance sheet. Some companies included software costs in the "property, plant and equipment" section; others placed these costs in the "other asset" or "intangibles" section. Some companies listed software costs separately and others did not. Studying the financial statements and accompanying footnotes of the publicly held software companies confirmed this view (Chapter 2). These views were confirmed again as a result of the vendor questionnaire (Chapter 3).

Companies that capitalized certain costs of constructed software did not seem to capitalize the same costs. Some companies capitalized only coding and testing, while others also capitalized detail design costs. Reasons given for either capitalizing or expensing software sometimes seemed to be based on expediency rather than accounting principles.

Some interviewees seemed to think that they were required to use the same accounting policy for financial statement purposes that they use for the tax return, which is not at all true, so some decisions seemed to be based on erroneous information. This initial conclusion was given added support as a result of the vendor questionnaire responses, which revealed that some executives were basing decisions on incorrect information, and were choosing their software accounting policy based on a combination of expediency, ignorance and short-term self-interest as well as on solid accounting theory.

Another bit of speculation revolved around the possibility that company size had an influence on software accounting policy. Such a view seems plausible. Expense accounting is simpler and less costly than asset accounting, so it seems to follow that smaller companies, which do not have the resources to administer a complex accounting system, would opt for expense accounting, whereas larger companies that have the resources to keep the necessary records could afford to establish an accounting system that is based on good accounting theory rather than expendiency. A review of financial statement footnotes (Chapter 2) led to a preliminary conclusion that company size has no correlation to

software accounting policy. However, a review of the footnotes revealed that a number of smaller companies capitalize enhancement costs, whereas larger companies tended to expense enhancement costs. It then became a question of whether the perceived difference was significant or illusory.

Although the questionnaire (Chapter 3) did not ask for a response to this identical point, the responses did not seem to reveal any perceptible difference in accounting policy between the large and small companies. The vast majority of companies of all sizes expense software construction costs, and a majority capitalize the costs of purchased software. Had the construction costs been broken down into their various components, including enhancement costs, perhaps there would have been a perceptible difference in accounting policy based on size of company. Perhaps smaller companies would have a tendency to capitalize enhancement costs, and larger companies would have a tendency to expense these costs, or perhaps the result would have been just the opposite. Regrettably, the question was not asked.

The interviews also alerted me to the fact that some software vendors feel strongly that the inability to capitalize software costs adversely affects their ability to raise capital and expand. This view was confirmed in the mail

questionnaire (Chapter 3), and it was learned that this view was held by a substantial minority of software company executives. Chapter 2 did not address this issue at all, so it is not possible to make comparisons between the empirical data in Chapter 2 with that of Chapter 3.

The question was also raised as to the extent that companies engage in R&D partnerships in order to capitalize software costs that would otherwise be expensed. Responses to the questionnaire (Chapter 3) revealed that this practice was not nearly as widespread as some of the interviewees led me to initially believe. However, it did confirm the belief that some companies do engage in R&D partnerships and that some of the reasons for doing so include expediency and short-term self-interest in addition to good business reasons, which confirms and verifies the information gathered during the course of the interviews.

The interviews also alerted me to the federal and state tax aspects of software, and revealed that there is a great deal of confusion in this area, partly because the people being interviewed, controllers for the most part, were not tax specialists, and partly because the area is so complex, confusing, unclear and constantly changing. Federal treatment is unclear (see Part III for a full discussion), and

companies do not seem to be applying the federal tax law consistently when it comes to software expenditures. Some companies apply the federal and state tax law aggressively and others are extremely conservative. The interviews pointed in the direction that most software tax litigation at the state level is being generated in California, and this preliminary view was confirmed by the questionnaire responses (Chapter 3). Responses to the questionnaire confirmed the initial view that federal and state tax law is being applied inconsistently by software vending companies, although the questionnaire did not shed much light on the reasons for the inconsistent treatment. Reasons for the different treatment might very well include ignorance, especially in the case of the smaller companies, which cannot afford to retain top legal counsel, at least not on a full-time basis. However, this view is mere speculation. Nothing in the questionnaire would either strongly suggest or dispute this view.

Another preliminary view raised during the interviews and confirmed by the questionnaire responses was that companies may classify software as tangible for some purposes and intangible for others. Software may be classified as intangible for sales, use and property tax purposes because such classification will reduce a company's tax burden.

Software may be classified as tangible for federal tax purposes for the same reason. Where companies reported differing classifications for software, the tendency was to classify it in the way that would be most beneficial to the company. For example, there was a tendency for a company to classify software as intangible for state sales, use and property tax purposes and tangible for federal tax credit purposes. However, it is possible that these classifications, in some cases at least, are being forced upon the companies in question, either by state law or by their auditor.

Expensing software costs on the financial statements reduces net income in the year the expenditure is recorded, so there is an advantage to capitalizing such costs because expenses are reduced, in the first year at least, by capitalizing. However, there is an advantage to expensing rather than capitalizing for tax purposes because expensing allows a company to take a larger tax deduction in the year the expenditure is recorded. Tax treatment and financial statement treatment do not have to be consistent, so a company is perfectly free to capitalize for financial statement purposes and expense for tax purposes, but most companies have a consistent policy, perhaps for reasons of expediency, or

perhaps because they do not know that their tax and financial statement policies need not be consistent. The interviews revealed that both of the two above-mentioned reasons were given by accounting executives who were assumed to be knowledgeable in their field, and the questionnaire confirmed my suspicion that, for some companies at least, software accounting policy is sometimes formulated based on faulty assumptions. It is surprising that more companies do not have different software accounting policies for financial statement and tax purposes. Perhaps one reason for not having different policies is that different policies would add one layer of complication to an accounting system that is deemed to be overly complex already. The cost of implementing the additional system may be more trouble than it is worth, in the eyes of software company executives.

# CHAPTER FIVE

# FOOTNOTE DISCLOSURE OF SOFTWARE ACCOUNTING POLICIES: SOFTWARE USER COMPANIES

## INTRODUCTION

In addition to the mail questionnaire surveys and personal interviews that were conducted as part of this study, a study of footnote disclosure of software accounting policies of software vendor and user companies was also made. Chapter 2 summarized the findings for software vendors. This chapter summarizes the findings for software user companies.

Information for this chapter was gathered using the NAARS data base.[1] The financial statement footnotes of 4,197 companies for fiscal 1981-82 and 3,104 companies for fiscal 1982-83 were searched for mention of software accounting policy. The software industry firms that were included in the other NAARS search (Chapter 2) were excluded. This summary includes only software user companies. One hundred twenty-five companies listed on NAARS had the word "software" listed in their accounting policy footnote. Some companies appeared twice, once for each fiscal year searched. Some

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[1]NAARS has financial statement data on more than 4,000 public companies, and is available by subscription from the American Institute of Certified Public Accountants. Thanks go to Robert Kueppers of Deloitte Haskins & Sells in New York, who provided me with access to the NAARS data base.

firms were included in the software industry search, and so are excluded from this summary. Other firms mentioned software in a context that was not relevant for purposes of this study. Policies for the remaining 65 firms were included in this chapter, and are listed below.

The analysis for this chapter is both similar and different from that presented in Chapter 2. For software user companies (Chapter 5), no attempt is made to analyze software accounting policy on the basis of type of company because the sample does not include enough companies from the same industry to make such an analysis meaningful. Furthermore, many of the companies included in the group of software users are in a multitude of businesses, so there would be an insurmountable classification problem if such an analysis were attempted. In Chapter 2, an attempt was made to perform an operations analysis (Table 2.1).

Chapter 2 made a size analysis based on revenue (Table 2.2). No similar analysis was made here, because all of the companies were large, so no comparison between the software accounting policy of large versus small companies was possible.

Chapter 2 made an analysis by auditor. Again, Chapter 5 makes no such analysis, because the smallness of the sample precludes any valid correlations from being made. Because software costs are such a small proportion of total cost for software users, the vast majority of software users did not even bother to discuss these costs in their financial statements. The few that did are included here, but this sample may be highly skewed. Many companies that did not mention software costs may very well have capitalized these costs and buried them somewhere in the balance sheet. However, we have no way to find out their software accounting policy other than by sending them a questionnaire (see Chapter 6).

The information provided in the remainder of this chapter is somewhat meaningful because it reveals the software accounting policies of some software user companies that have published their software accounting policies. Accountants who must write the financial statement footnotes for their companies will be able to borrow from the wording used by these companies. No attempt should be made to discern any patterns from this data, however, because it is far from complete. It is being offered here for informational purposes only.

TABLE 5.1

MATRIX SUMMARY OF SOFTWARE ACCOUNTING POLICIES
PUBLIC COMPANIES - SOFTWARE USERS

| COMPANY | CONSTRUCTION COSTS | ENHANCEMENT COSTS | ACQUIRED SOFTWARE | UNSPECIFIED SOFTWARE COSTS |
|---|---|---|---|---|
| Amdahl Corporation | E | | | |
| American Management Systems, Inc. | | | C | |
| Applied Devices Corporation | C | | | |
| Bank South Corporation | | | C | |
| Biscayne Federal Savings and Loan | C | | C | |
| CGA Computer Associates, Inc. | | | C | |
| CADO Systems Corporation | | | C | |
| Chittenden Corporation | | | | C |
| Commerce Clearing House, Inc. | | | C | |
| Computer Network Corporation | E | | C | |
| Computervision Corporation | E | | | |
| Coradian Corporation | C/E | | | |
| Denelcor, Inc. | C/E | | | |
| Dimis, Inc. | Not Disclosed | | | |
| Docutel Corporation | | | C | |
| The Dun and Bradstreet Corporation | | | C | |
| Durr-Fillauer Medical, Inc. | E | | | |
| Electronic Data Systems Corporation | | | C | |
| Ensource, Inc. | | | | C |
| European American Bankcorp | E | C | | |

Code

C - Capitalized
E - Expensed

| COMPANY | CONSTRUCTION COSTS | ENHANCEMENT COSTS | ACQUIRED SOFTWARE | UNSPECIFIED SOFTWARE COSTS |
|---|---|---|---|---|
| First Empire State Corporation | C/E | E | | |
| First Kentucky National Corporation | C/E | E | C | |
| HI-G Incorporated | | | | C |
| IMS International, Inc. | C | C | | |
| ISC Systems Corporation | E | | | |
| ITT | C/E | | | |
| Insurance and Finance Subsidiary of ITT | C | | | |
| Intergraph Corporation | Not Disclosed | | | |
| Kay Corporation | | | | C |
| The L. E. Myers Company | | | C | |
| Lifemark Corporation | C | | | |
| Lincoln Income Life Insurance Company | | | | C |
| Magnuson Computer Systems, Inc. | Not Disclosed | | | |
| Management Assistance, Inc. | E | E | | |
| Mathematical Applications Group, Inc. | E | | | |
| May Energy Partners, Ltd. | | | | C |
| Metpath, Inc. | C | | | |
| Mobile Communications Corporation of America | | | | C |
| Modular Computer Systems, Inc. | C | | C | |
| Multivest, Inc. | | | | C |
| Munford, Inc. | C | | | |
| National City Corporation | | | | C |
| National Data Communications, Inc. | E | E | | |
| PBA, Inc. | | | | C |
| Pacific Standard Life Company | | | | C |

Code

C - Capitalized
E - Expensed

| COMPANY | CONSTRUCTION COSTS | ENHANCEMENT COSTS | ACQUIRED SOFTWARE | UNSPECIFIED SOFTWARE COSTS |
|---|---|---|---|---|
| Quality Care, Inc. | | | | C |
| Raymond International, Inc. | | | C | |
| The Reynolds and Reynolds Company | Not Disclosed | | | |
| SEI Corporation | | | C | |
| Seibels Bruce Group, Inc. | E | | | |
| Shared Medical Systems Corporation | E | E | C | |
| The Statesman Group, Inc. | | | C | C |
| Syntech International | | | C | |
| Techtran Industries, Inc. | C | | C | |
| Teradyne, Inc. | E | E | C | |
| Tymshare, Inc. | E | | C | |
| The Union Metal Manufacturing Company | | | | C |
| United States Mutual Real Estate Investment Trust | | | | C |
| U. S. Shelter | C | | | |
| United Telecommunications | Not Disclosed | | | |
| Wallace Computer Services, Inc. | E | E | C | |
| Washington National Corporation | C/E | | | |
| Whittaker Corporation | | | C | |
| Wyle Laboratories | | | C | |
| Zale Corporation | C/E | | | |

Code

C - Capitalized
E - Expensed

TABLE 5.2

SURVEY OF SOFTWARE ACCOUNTING POLICIES
SOFTWARE USER COMPANIES

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| AMDAHL CORPORATION | Engineering and development costs are expensed as incurred. The Company anticipates that continued engineering and development efforts will be required to maintain and improve the efficiency of its high technology products and to develop new products. | December 25, 1981 | Arthur Andersen & Company |
| AMERICAN MANAGEMENT SYSTEMS, INC. | Revenue from sales of "off-the-shelf" software packages is recorded at the time of contract signing, less an amount approximately equal to costs required to complete the performance of the contract which is later recognized on a percentage of completion basis.<br><br>Revenues from cost-shared software research and development contracts are recorded using the percentage of completion method. In 1982, when such cost-shared work began, the Company recorded approximately $778,000 of revenues relating to cost-shared research and development projects.<br><br>Revenues for computer services are recorded on the basis of usage at scheduled contract prices per unit of production, or the contract minimum monthly charge, whichever is greater.<br><br>Fixed assets and purchased computer software and software licenses are recorded at cost. Software and software licenses are generally amortized over five years using the straight-line method. | December 31, 1982 | Price Waterhouse & Company |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| APPLIED DEVICES CORPORATION | Sales relating to certain long-term contracts, some of which contain provision for incentive fees and penalties, are recorded in the accounts principally under the percentage of completion method. Revenue, under certain contracts calling for both the development of software and the production of hardware, is recognized on the percentage of completion method for the software development phase of the contract and on a unit delivery basis for the remainder of the contract. Under the percentage of completion method, revenue is based on that percentage of the contract price costs incurred to date bear to total estimated costs. Where changes in contract cost estimates result in adjustments, the full income effect of such adjustments is recognized in the accounting period in which the change is made. Provision is made for the total loss anticipated where the estimate of total contract costs indicates a loss. The effect of overhead rate adjustments resulting from Government audits is recorded in the year the rates are finalized and notification is received by the Company. | October 31, 1982 | Coopers & Lybrand |
| BANK SOUTH CORPORATION | Costs of computer software purchased from vendors are deferred and amortized over their estimated useful lives. | December 31, 1982 | Ernst & Whinney |
| BISCAYNE FEDERAL SAVINGS AND LOAN ASSOCIATION | Costs incurred for acquisition or development of computer software are capitalized in other assets and amortized over five years. | June 30, 1982 | Deloitte Haskins & Sells |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| CGA COMPUTER ASSOCIATES, INC. | Revenue from consulting services, performed principally on a time and material basis, is recognized as the work is performed, at agreed upon billing rates. Revenue from proprietary software products which are marketed to customers primarily under annual and perpetual license arrangements is recognized at the time the product is installed and unconditionally accepted by the customer.<br><br>As a result of the amortization of software packages and goodwill and the related tax effect, net income under the pooling of interests method of accounting would exceed the purchase method of accounting by approximately $2,700,000 per year over the five year amortization period.<br><br>The application of the purchase method of accounting to the ASC combination results in the recording of software packages and goodwill. The fair value of software packages, $11,770,000, which is based upon an independent appraisal, and goodwill in the amount of $6,562,000, are being amortized on a straight-line basis over their estimated useful lives, a five-year period. | April 30, 1982 | Price Waterhouse & Company |
| CADO SYSTEMS CORPORATION | Computer software programs acquired by the company are capitalized and amortized by use of the straight-line method over their expected useful lives, generally three years. | December 31, 1981 | Peat, Marwick, Mitchell & Company |
| CHITTENDEN CORPORATION | Provision for depreciation and amortization is computed by the straight-line method for financial statement purposes based on the estimated useful lives of the respective assets, and accelerated methods for income tax purposes. The difference between book and tax depreciation is reflected as a timing difference in the tax provision. The estimated life of software for book purposes is five years. | December 31, 1981 | R. F. Lavigne & Company |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| COMMERCE CLEARING HOUSE, INC. | Purchased computer software is amortized over five years. | December 31, 1982 | Touche Ross & Company |
| COMPUTER NETWORK CORPORATION | Internal software development costs are expensed as incurred, whereas software purchased is capitalized and amortized over estimated useful lives. Capitalized software is currently being amortized over a five-year period. | March 31, 1982 | Arthur Andersen & Company |
| COMPUTERVISION CORPORATION | The company expenses all research and product and software development costs as incurred. | December 31, 1981 | Price Waterhouse & Company |
| CORADIAN CORPORATION | Certain internal software development costs related to the new management information system have been capitalized. | December 31, 1981 | Peat, Marwick, Mitchell & Company |
| DENELCOR, INC. | The costs and expenses related to basic research and development are expensed as incurred. Costs of software development are also expensed as incurred until such time as the remaining costs, if any, are realizable through future production and sale. Software development costs capitalized are amortized using the straight-line method based upon the asset's estimated useful life. | December 31, 1982 | Arthur Andersen & Company |
| DIMIS, INC. | Service revenues result from the company's software maintenance and development contracts and system rental contracts and are recognized as earned over the contract periods. | December 31, 1981 | Peat, Marwick, Mitchell & Company |
| DOCUTEL CORPORATION | Amortization of purchased software is provided by the straight-line method over the expected period to be benefited of five fives. | December 31, 1981 | Arthur Young & Company |
| THE DUN AND BRADSTREET CORPORATION | Purchased computer software ($21,625,000) is amortized over five to seven years using the straight-line method. | December 31, 1982 | Coopers & Lybrand |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| DURR-FILLAUER MEDICAL, INC. | The Company charges to expense all research and development costs as incurred. These costs are related to computer software development. The total costs charged to expense in 1982, 1981 and 1980 were $160,000, $84,000 and $59,000, respectively. | December 31, 1982 | Wilson, Price, Barranco & Billingsley |
| ELECTRONIC DATA SYSTEMS CORPORATION | Purchased software is being amortized on a straight-line basis over a five-year life or the life of the related customer contract, whichever is less. | June 30, 1982 | Arthur Young & Company |
| ENSOURCE, INC. | Other property primarily consists of furniture and fixtures, leasehold improvements and computer software that are being depreciated or amortized on a declining balance method using useful lives of three to five years. | December 31, 1982 | Arthur Andersen & Company |
| EUROPEAN AMERICAN BANKCORP | Deferred charges consist of certain software development costs relating to significant system modifications. Amortization is computed on a straight-line basis over a three year period commencing upon implementation of these system modifications. | December 31, 1982 | Peat, Marwick, Mitchell & Company |
| FIRST EMPIRE STATE CORPORATION | Other assets include deferred software costs related to the development of major computer systems for administrative purposes. Such costs are amortized on the straight-line method over three to five years, the estimated useful lives of the assets. | December 31, 1981 | Peat, Marwick, Mitchell & Company |
| FIRST KENTUCKY NATIONAL CORPORATION | Purchased software costs and other direct costs associated with the development of operating and management information systems are capitalized and amortized by the straight-line method over periods not exceeding seven years from the time such systems become operational. Systems modifications and maintenance costs are expensed as incurred. | December 31, 1982 | Coopers & Lybrand |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| HI-G INCORPORATED | Software costs of $546,000 and $396,000 are being amortized for 1982 and 1981, respectively, over five years. | April 3, 1982 | Laventhol & Horwath |
| IMS INTERNATIONAL, INC. | Costs of developing and implementing new or improved computer systems are capitalized over two to five year periods. | December 31, 1982 | Arthur Andersen & Company |
| ISC SYSTEMS CORPORATION | Revenue Recognition. The company manufactures and sells on-line teller terminal systems used in the financial industry. The system includes hardware, general operating system software and custom application software. Revenue is recognized upon acceptance and delivery of the system. In those cases where the hardware is delivered prior to the acceptance of the system, no revenue is recognized until such acceptance is completed. Service and other revenues are recognized over the contractual period or as the services are provided.<br><br>Research and Development Costs. All research, product development, software development and engineering costs are charged to expense as incurred. | June 24, 1982 | Deloitte Haskins & Sells |
| ITT | Computer Software Costs. Costs of development and implementation of computer software not directly related to research and development are capitalized and included in Other Assets. These costs are amortized over the lesser of five years or their useful life. | December 31, 1982 | Arthur Andersen & Company |
| INSURANCE AND FINANCE SUBSIDIARY OF ITT | Costs of development and implementation of computer software are capitalized and included in Other Assets. These costs are amortized over the lesser of five years or their useful life. As of December 31, 1982 and 1981, these costs amounted to $27,914,000 and $4,315,000, net of amortization. | December 31, 1982 | Arthur Andersen & Company |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| INTERGRAPH CORPORATION | Revenues on product sales are recognized as equipment and software are shipped under the contract. A certain portion of revenue from systems sales is not recognized until installation is complete and the warranty period has expired. Billings, which are made at specified times during the performance of the contract or agreement, generally do not coincide with the recognition of revenue. Income from cost-plus-fee contracts is recognized as costs are incurred and fees are earned under the contract. Income from maintenance and operating lease contracts is recognized monthly over the life of the contract. | December 31, 1982 | Ernst & Whinney |
| KAY CORPORATION | Computer systems and software costs, included in other assets, are capitalized and amortized on a straight-line basis over three years. | December 31, 1982 | Arthur Young & Company |
| THE L. E. MYERS COMPANY | On February 22, 1980, Myers acquired Scott & Scott Consultants, Inc., which develops computer software systems for electric utilities. The acquisition was accounted for as a purchase and results of operations are included since acquisition. Intangibles in the amount of $203,000 were recognized in the acquisition and are being amortized over a three year period using the straight-line method. | December 31, 1982 | Main Hurdman |
| LIFEMARK CORPORATION | Computer software development and installation costs are deferred and amortized on a straight-line basis over the useful lives of the applications not in excess of five years. | December 31, 1981 | Peat, Marwick, Mitchell & Company |
| LINCOLN INCOME LIFE INSURANCE COMPANY | Computer software is depreciated over five years using the straight-line method. | December 31, 1982 | Christen, Brown & Rufer |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| MAGNUSON COMPUTER SYSTEMS, INC. | The Company operates in one industry segment which includes the design, development, manufacturing, marketing and servicing of general purpose computer systems which are designed to operate with software and peripheral equipment offered by or compatible with that of IBM.<br><br>Revenue Recognition.<br><br>Accounting Change. The policy for the recognition of revenue was changed in the fourth quarter of 1981. The new policy results in revenue recognition at time of product installation for those transactions where the company has installation responsibility. During 1980 and 1979, revenue was recognized on such transactions at time of shipment. This change was made because significantly longer periods of time were experienced in 1981 between shipment and installation. No change was made to the policy where the company does not have installation responsibility or to the requirement that the company have a firm order and that financing arrangements have been completed.<br><br>The new revenue recognition accounting policy adopted in 1981 has been applied retroactively to the beginning of the year and the cumulative effect of the change on prior years ($1,017,000) is included in the 1981 results of operations. Application of the new accounting policy during 1981 increased loss before cumulative effect of accounting change by $1,066,000 ($.22 per share). The total impact increased the 1981 net loss by $2,083,000. | December 31, 1981 | Deloitte Haskins & Sells |
| MANAGEMENT ASSISTANCE, INC. | Research and development costs are charged to expense when incurred and include engineering and product enhancement costs. | September 30, 1982 | Peat, Marwick, Mitchell & Company |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| MATHEMATICAL APPLICATIONS GROUP, INC. | Research and Development. Research and development costs (principally software and systems development costs) are charged to expense when incurred. Such costs amounted to approximately $1,183,000 (1982), $1,138,000 (1981) and $829,000 (1980). | March 31, 1982 | Ernst & Whinney |
| MAY ENERGY PARTNERS, LTD. | Computer software was implemented to maintain May Energy's tax accounts and to prepare its tax reports. Such costs are being amortized over five years using the straight-line method. | December 31, 1982 | Arthur Andersen & Company |
| METPATH, INC. | Computer software development and installation costs (unamortized balances of $1,311,000 in 1981 and $358,000 in 1980) are deferred and will be amortized on a straight-line basis over periods of four to five years. | September 30, 1981 | Laventhol & Horwath |
| MOBILE COMMUNICATIONS CORPORATION OF AMERICA | Other assets consist primarily of debenture issuance costs, organizational costs, and data processing software cost. These costs are being amortized over periods ranging from five to forty years. | December 31, 1982 | Arthur Andersen & Company |
| MODULAR COMPUTER SYSTEMS, INC. | Amortization of Other Assets. The costs of purchased computer technology are amortized on a straight-line method over the estimated development period.<br><br>Costs of purchased software and licenses are amortized on straight-line and unit-of-sale methods, respectively, over the estimated product lives.<br><br>Costs of management information systems are amortized on a straight-line method over the estimated period of benefit. | December 31, 1982 | Price Waterhouse & Company |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| MULTIVEST, INC. | Depreciation and amortization, computed by the straight-line method for financial statement purposes, are provided over the useful lives of the various classes of property and equipment. Intangible assets, primarily software costs, are being amortized over their respective lives.<br><br>During 1981, the Company revised earlier estimates of the useful lives for calculating depreciation of all computer hardware and software. This change in accounting estimate had the effect of increasing the 1981 net loss by $316,000 ($.51 per share). | December 31, 1982 | Coopers & Lybrand |
| MUNFORD, INC. | Software development costs are capitalized and amortized over five years using the straight-line method. | December 30, 1982 | Touche Ross & Company |
| NATIONAL CITY CORPORATION | Costs of major new software are capitalized and amortized over a period not exceeding five years. | December 31, 1982 | Ernst & Whinney |
| NATIONAL DATA COMMUNICATIONS, INCORPORATED | Programming fees are recognized based on hourly rates as the work is performed. Software license fees are recognized based on the respective contract terms which vary significantly. The company currently either grants a 75% partially paid-up software license with continuing monthly license fees for the remaining 25% or grants a license on a rental basis with no initial fee but continuing monthly fees. Equipment sales are recognized when the equipment has been tested in the company's offices and shipped to the hospital for installation. Maintenance and computer operations fees are recognized on a monthly basis in accordance with contract terms with related costs recognized as incurred. | October 31, 1981 | Peat, Marwick, Mitchell & Company |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| PBA, INC. | Capitalized computer software costs (which include $40,000 of capitalized interest) will be amortized using the straight-line method over five years. Such amortization will begin during fiscal 1983, when the software will be operational. | June 30, 1982 | Richard A. Eisner & Company |
| PACIFIC STANDARD LIFE COMPANY | Deferrable computer software costs have been capitalized and are being amortized over five and twenty year periods. | December 31, 1982 | Coopers & Lybrand |
| QUALITY CARE, INC. | Start-up costs incurred in connection with branch office operations and computer software costs related to the installation of new equipment and to the development of new programs have been deferred and are being amortized on a straight-line basis over periods not exceeding thirty-six months. | November 30, 1981 | Touche Ross & Company |
| RAYMOND INTERNATIONAL INCORPORATED | Acquired computer software is being amortized over six years on a straight-line basis. | December 31, 1981 | Price Waterhouse & Company |
| THE REYNOLDS AND REYNOLDS COMPANY | Software license fees are charged for the use of company-developed computer programs (such as accounting and inventory control) by customers who either purchase or lease in-house computer equipment. These revenues are recognized over the term of the support agreement which is generally five to seven years. | September 30, 1982 | Deloitte Haskins & Sells |
| SEI CORPORATION | Property and equipment are stated at cost. Depreciation and amortization are provided using the straight-line method for financial reporting purposes, while accelerated methods are used for tax purposes. Estimated useful lives for purchased software are five to eight years. | December 31, 1982 | Arthur Andersen & Company |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| SEIBELS BRUCE GROUP, INC. | Initial license charges from computer software systems are recognized at the time of the contractual agreement. Monthly license charges from computer software systems and income from services are recognized as billed and earned. Systems research and development costs are expensed as incurred. Such costs were $11,875,000 in 1982 ($6,763,000 in 1981 and $4,441,000 in 1980). | December 31, 1982 | Clarkson, Harden and Gantt |
| SHARED MEDICAL SYSTEMS CORPORATION | Property and equipment are stated at cost. Depreciation and amortization are provided using the straight-line method over the estimated useful lives. The cost of purchased software is capitalized and amortized over a five year period while the cost of in-house developed software is expensed as incurred.<br><br>The company expenses research and development costs in the year in which they are incurred. These expenses are primarily computer costs and salaries to enhance and develop applications. These expenses amounted to $13,724,000 in 1982, $10,551,000 in 1981, and $8,205,000 in 1980. | December 31, 1982 | Arthur Andersen & Company |
| THE STATESMAN GROUP, INC. | Property and Equipment. Property and equipment, which includes data software costs, are reported at cost, less accumulated depreciation. Provisions for depreciation are computed by straight-line and declining balance methods.<br><br>Data software costs, which consist of payments of outside parties, are being amortized over five years. The unamortized balance of data software costs at December 31, 1982 is $2,072,000. | December 31, 1982 | Ernst & Whinney |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| SYNTECH INTERNATIONAL | The cost of a software distribution license, obtained in exchange for cancellation of a trade note receivable, is being amortized over two years. At December 31, 1982, the unamortized cost related to such license included in other assets approximated $88,000. | December 31, 1982 | Deloitte Haskins & Sells |
| TECHTRAN INDUSTRIES, INC. | The cost of acquired computer software and product design is being amortized over three years on the straight-line method. | August 31, 1981 | Cortland L. Brovitz & Company |
| TERADYNE, INC. | The company's products are highly technical in nature and require a large and continuing engineering and development effort. Purchased computer software is amortized over its expected useful life of five years. All other engineering and developmental costs are expensed as incurred. | December 31, 1982 | Coopers & Lybrand |
| TYMSHARE, INC. | The cost of software developed by the company is charged to expense as incurred. Purchased software is capitalized and amortized over its estimated life. | December 31, 1982 | Arthur Andersen & Company |
| THE UNION METAL MANUFACTURING COMPANY | Software costs are recorded at cost less amortization computed on the straight-line method over the estimated useful life of fifteen years. | December 31, 1982 | Ernst & Whinney |
| UNITED STATES MUTUAL REAL ESTATE INVESTMENT TRUST | Computer equipment and software are stated at cost less accumulated depreciation and amortization. Depreciation and amortization are charged to operations under the straight-line method over the estimated useful lives of the assets which range from five to ten years. | April 30, 1982 | Price Waterhouse & Company |
| U. S. SHELTER | Internally developed computer software costs of $325,000 in 1982 and $206,000 in 1981, expected to benefit future periods by improving management information systems and reducing accounting costs, are being deferred and amortized over four years. | December 31, 1982 | Ernst & Whinney |

| Company | Policy | Annual Report Date | Auditor |
|---|---|---|---|
| UNITED TELECOMMUNICATIONS | Software sales are recorded on a percentage of completion basis. | December 31, 1982 | Arthur Young & Company |
| WALLACE COMPUTER SERVICES, INC. | Purchase costs of computer software are amortized over their estimated useful lives. Internal development costs are expensed. | July 31, 1982 | Arthur Andersen & Company |
| WASHINGTON NATIONAL CORPORATION | Certain costs in developing computer software are deferred when incurred, and amortized on a straight-line basis over ten years or less. | December 31, 1982 | Ernst & Whinney |
| WHITTAKER CORPORATION | Purchased software is related to the medical information systems business and is amortized using the straight-line method over seven years. | October 31, 1982 | Ernst & Whinney |
| WYLE LABORATORIES | The cost of purchased software is being amortized principally over seven years using the straight-line method. | January 31, 1982 | Arthur Andersen & Company |
| ZALE CORPORATION | Computer software costs related to the development of major systems are capitalized as incurred and amortized over their useful lives using the straight-line method. | March 31, 1983 | Arthur Andersen & Company |

## SUMMARY

Of the 65 companies that disclosed their software accounting policies, 16 capitalize at least some software construction costs and 21 companies expense at least some of these costs. Many companies did not disclose their treatment of software construction costs.

At least two companies capitalize their enhancement costs, while at least seven companies expense such costs. All 24 companies that disclosed their accounting policy for purchased software capitalize these costs. Fifteen companies stated that certain software costs were capitalized without specifying whether these costs were for software construction, enhancements or software purchases.

No attempt was made to compare the data gathered in this chapter with that gathered by the software user questionnaire (Chapter 6) because such a comparison would not be meaningful and could be misleading. The footnote disclosures are incomplete because many companies did not break down their software expenditures by category (construction costs, enhancements, and purchased software). Furthermore, the small sample (65 out of 4,197 possible) may not be representative of public software user companies.

# CHAPTER SIX

# THE SOFTWARE USER QUESTIONNAIRE

## INTRODUCTION

Upon completing the literature search and the personal interviews, it was determined that additional information regarding software user accounting policies should be gathered. A review panel was selected to determine which questions should be included in the questionnaire. The review panel was drawn from the NAA's Management Accounting Practices Committee and its Subcommittee on MAP Statement Promulgation, as well as members of AICPA's Software Task Force (see Appendix M). Some interviewees and other selected members of the NAA also agreed to serve on the review panel. The internal user questionnaire questions were reviewed by 47 panel members for accuracy, completeness and relevance.

The sample for the internal user questionnaire was randomly selected from the Fortune 1000 and specialty lists. Four hundred fifty questionnaires (see Appendix G), cover letters addressed to the controller, and prepaid envelopes were mailed. There were 216 usable responses, for a response rate of 48 percent. This chapter summarizes the mail questionnaire responses.

## Preliminary Discussion

The principal objective of the questionnaire was to derive an informed view of current practice in accounting for software at a more detailed level than that relating simply to capitalizing or expensing. In particular, there was included an attempt to ascertain rather more clearly the extent to which accounting procedures relating to software costs were motivated by principle or accounting convenience or bottom-line considerations. The need to know more about the actualities of the current situation as a crucial input to the developing debate on software accounting meant that the informational requirement had to take precedence over the interpretive element. Consequently, the questions addressed to the issue of "why" rather than "how" are tentative and simplistic. The results accruing to them constitute not so much the foundations for finished conclusions about accounting motivations as the opening of a door to further research in this area.

Generally, those parts of the questionnaire directed to the question of <u>how</u> firms account for software substantially agree with the impressions derived from the study of published financial statements. Those parts of the questionnaire directed to the question of <u>why</u> firms account in the

way that they do yield more ambiguous results. A much more detailed enquiry will be necessary to clarify such methodological issues as: do the responses reflect considered opinions or rather justifications of mere reactive positions? Do the responses represent conclusions of individual experience or are they mere (and perhaps unconscious) regurgitations of arguments read in journals or heard in conferences? yet, notwithstanding these and similar (other) weaknesses, in the data here presented, the overall impression gained is that the accounting procedures employed are at best naive interpretations of unrefined accounting dogma, and at worst determined by expediency. Such expediency may be derived from consideration of the raw costs of accounting systems or from perceived (but so far as the author can tell, untested) pressures for bottom-line results. These matters are considered in more detail in the review comments on each question and the answer thereto.

In Chapters 2 and 3 an attempt was made to determine whether any relationship existed between size of company and software accounting policy. (See Tables 2.2 and 3.3.) Such an attempt seemed reasonable because the sample of software vendor companies included a fair number of small, medium-size and large companies. However, no attempt has been made

to determine whether such a relationship existed for software user companies, because the companies in this sample ranged from very large to gigantic, and it is likely that they all have sophisticated accounting systems. Furthermore, the software user company sample included only public companies, so there is less likelihood of finding the striking differences in accounting policy that might have existed if the sample had also included private companies.

Chapter 2 also made an attempt to determine whether any relationship existed between field of operation and software accounting policy (see Table 2.1). However, in that sample, a wide variety of fields of operation existed. In the software user group, only two broadly-defined fields of operation existed in any quantity, namely, manufacturing and financial services. Several other groups were only sparsely represented, so it was deemed that a presentation similar to that given in Chapter 2 was not warranted and would not be meaningful.

## The Questions and Responses

The following few pages list the questions included in the software user questionnaire and the responses received to those questions.

Question No. 1: What amortization method and time period range are used for financial statement purposes to amortize: (1) purchased/leased: (a) systems software, (b) applications software; (2) internally developed: (a) systems software, (b) applications software?

This question was asked in order to obtain basic information regarding the company's software accounting policy, and to see whether the responses of the software user companies were similar to those of the software vendors.

TABLE 6.1

AMORTIZATION METHODS

QUESTION 1 - SOFTWARE USERS

| Amortization Method | Purchased | | | | Internally Constructed For | | | |
|---|---|---|---|---|---|---|---|---|
| | Systems Software | | Applications Software | | Systems Software | | Applications Software | |
| | # | % | # | % | # | % | # | % |
| None. All such costs are expensed | 72 | 33.3% | 82 | 38.0% | 193 | 89.4% | 191 | 88.4% |
| Straight-line method | 130 | 60.2 | 124 | 57.4 | 20 | 9.3 | 22 | 10.2 |
| Sum of the years digits method | 3 | 1.4 | 2 | 0.9 | - | - | - | - |
| Declining balance method | 4 | 1.9 | 3 | 1.4 | - | - | - | - |
| Other | 7 | 3.2 | 5 | 2.3 | 3 | 1.4 | 3 | 1.4 |
| Total | 216 | | 216 | | 216 | | 216 | |
| Percent of firms expensing software | | 33.3% | | 38.0% | | 89.4% | | 88.4% |
| Percent of firms capitalizing software | | 66.7 | | 62.0 | | 10.6 | | 11.6 |
| For those firms that capitalize software, the various amortization methods are used with the following frequencies: | | | | | | | | |
| Straight-line method | 130 | 90.3% | 124 | 92.5% | 20 | 87.0% | 22 | 88.0% |
| Sum of the years digits method | 3 | 2.1 | 2 | 1.5 | - | - | - | - |
| Declining balance method | 4 | 2.8 | 3 | 2.2 | - | - | - | - |
| Other | 7 | 4.9 | 5 | 3.7 | 3 | 13.0 | 3 | 12.0 |
| | 144 | | 134 | | 23 | | 25 | |

TABLE 6.2

AMORTIZATION TIME PERIOD

QUESTION 1 - SOFTWARE USERS

| Amortization Time Period | Purchased | | | | | | Internally Constructed | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Systems Software | | | Applications Software | | | Systems Software | | | Applications Software | | |
| | No. | Percent of Total | Cumulative Percentage | No. | Percent of Total | Cumulative Percentage | No. | Percent of Total | Cumulative Percentage | No. | Percent of Total | Cumulative Percentage |
| 2-5 years | 1 | 0.8% | 0.8% | 1 | 0.8% | 0.8% | - | - | - | - | - | - |
| 3 years | 5 | 4.1 | 4.9 | 5 | 3.8 | 4.6 | 3 | 16.7% | 16.7% | 3 | 13.6% | 13.6% |
| 3-5 years - (4.0) | 30 | 24.4 | 29.3 | 31 | 23.7 | 28.3 | 4 | 22.2 | 38.9 | 4 | 18.2 | 31.8 |
| 4 years | 2 | 1.6 | 30.9 | 2 | 1.5 | 29.8 | - | - | 38.9 | - | - | 31.8 |
| 5 years or less | 1 | 0.8 | 31.7 | 2 | 1.5 | 31.3 | - | - | 38.9 | - | - | 31.8 |
| 5 years | 72 | 58.5 | 90.2 | 79 | 60.3 | 91.6 | 10 | 55.6 | 94.4 | 12 | 54.5 | 86.3 |
| 3-7 years - (5.0) | 1 | 0.8 | 91.0 | 2 | 1.5 | 93.1 | 1 | 5.6 | 100.0 | 1 | 4.5 | 90.8 |
| 3-8 years - (5.5) | 1 | 0.8 | 91.8 | 1 | 0.8 | 93.9 | - | - | | - | | 90.8 |
| 5-7 years - (6.0) | 3 | 2.4 | 94.2 | 2 | 1.5 | 95.4 | - | - | | - | | 90.8 |
| 6 years | 2 | 1.6 | 95.8 | 1 | 0.8 | 96.2 | - | - | | - | | 90.8 |
| 3-10 years (6.5) | 2 | 1.6 | 97.4 | 1 | 0.8 | 97.0 | - | - | | - | | 90.8 |
| 7 years | 1 | 0.8 | 98.2 | 2 | 1.5 | 98.5 | - | - | | - | | 90.8 |
| 5-10 years - (7.5) | 1 | 0.8 | 99.0 | - | - | 98.5 | - | - | | - | | 90.8 |
| 8 years | 1 | 0.8 | 100.0 | 1 | 0.8 | 99.3 | - | - | | 1 | 4.5 | 95.3 |
| 10 years | - | - | | - | - | 99.3 | - | - | | 1 | 4.5 | 100.0 |
| 15-20 years - (17.5) | - | - | | 1 | 0.8 | 100.0 | - | - | | - | | |
| Totals | 123 | | | 131 | | | 18 | | | 22 | | |

Table 6.1 shows that two companies in three (66.7%) capitalize purchased systems software and about the same percentage (62.0%) capitalize purchased applications software. The number of firms that capitalize internally constructed systems and applications software is much lower, 10.6 percent and 11.6 percent, respectively. For those companies that capitalize software, about 90 percent use the straight-line method of amortization. Table 6.2 reveals that about 90 percent of capitalized software costs are amortized over five years or less. These findings support the preliminary interview findings and the NAARS footnote disclosures (Chapter 5). Software vendors capitalized software purchased for internal use 66% of the time, whereas software constructed for internal use was capitalized in only 6% of the cases (see Chapter 3, Table 3.1).

Some companies gave multiple responses to Question 1. Others did not respond to some portions of the question. A few companies mentioned that software costing less than some threshold amount is expensed, and software costing more than that amount is capitalized. The threshold amounts mentioned ranged from $20,000 to $2 million. Several companies amortize systems software over the life of the hardware. A few

amortize software that is "bundled" with the hardware and expense software that is not.

Question No. 2: What costs are capitalized for internally developed software?

This question was also asked in order to obtain basic, yet specific information regarding the company's software accounting policy, and to see whether the responses of the software user companies were similar to those of the software vendors.

TABLE 6.3

CATEGORIES OF CAPITALIZED COSTS FOR INTERNALLY CONSTRUCTED SOFTWARE

QUESTION 2 - SOFTWARE USERS

| Category of Capitalized Cost | Number of Companies Capitalizing | |
|---|---|---|
| | Systems Software | Applications Software |
| Feasibility costs (and other costs incurred prior to design costs in the software product life cycle) | 7 | 12 |
| Design costs | 22 | 24 |
| Coding costs | 18 | 22 |
| Testing costs | 21 | 22 |
| Support costs | 10 | 12 |
| Service costs | 8 | 8 |
| Other | 13 | 14 |

As was true of software vendors, the categories of internally constructed software cost of software users that tend to be capitalized most frequently are design, coding and testing costs. Table 6.3 shows the breakdown by category. This finding supports the tentative evidence gathered in the course of the personal interviews, and is similar to the treatment accorded by software vendor companies (see Chapter 3, Table 3.6).

Question No. 3: For compilers, system control programs and other software that is an integral part of the hardware, the software is: (a) expensed; (b) amortized over the same period as the hardware; (c) amortized over a shorter period than the hardware; (d) other (Specify).

This question was inserted at the insistence of two members of the advisory panel. Its relevance to the research can at best only be that it offers evidence on another dimension of software accounting.

TABLE 6.4

ACCOUNTING TREATMENT OF SOFTWARE
THAT IS AN INTEGRAL PART OF THE HARDWARE

QUESTION 3 - SOFTWARE USERS

| | Number of Responses | Percentage |
|---|---|---|
| Expensed | 60 | 36.1% |
| Amortized over the same period as the hardware | 83 | 50.0 |
| Amortized over a shorter period than the hardware | 11 | 6.6 |
| Other | 12 | 7.2 |
| Total Responses | 166 | |

For compilers, system control programs and other software that is an integral part of the hardware, the software is most often amortized over the same period as the hardware (50.0%) or expensed (36.1%). (See Table 6.4). A few (6.6%) use a shorter period. The remainder (7.2%) amortize over three to five years or over the lease term.

Where amortization is involved, there appears to be, in many cases, a degree of expediency in the choice of amortization period in that there does not seem to be any obvious reason to anticipate that a system program should last as long as its related hardware. Systems are modified and/or hardware can be replaced. On the other hand, we can speculate that any other amortization period is likely to be an equally arbitrary choice. The author is unaware of any mortality tables for computer software!

Question No. 4: Software maintenance and enhancement costs are: (a) expensed as incurred; (b) amortized over the remaining life of the original program; (c) assigned its own life and amortized over _____ years using the _____ method of amortization; (d) other (Specify).

This question was asked in order to determine, first of all, whether maintenance and enhancement costs were expensed or capitalized, and secondly, what amortization life and method are used. Based on the responses, it could also be determined whether different treatment was accorded enhancement costs than maintenance costs.

TABLE 6.5

ACCOUNTING TREATMENT OF SOFTWARE MAINTENANCE AND ENHANCEMENT COSTS

QUESTION 4 - SOFTWARE USERS

| | Maintenance | | Enhancement | |
|---|---|---|---|---|
| | Number of Responses | Percentage | Number of Responses | Percentage |
| Expensed as incurred | 155 | 93.4% | 129 | 78.7% |
| Amortized over the remaining life of the original program | 2 | 1.2 | 21 | 12.8 |
| Assigned its own life and amortized over __ years using the ____ method of amortization | 6 | 3.6 | 11 | 6.7 |
| Other | 3 | 1.8 | 3 | 1.8 |
| Firms not responding* | 50 | | 52 | |
| Totals | 216 | | 216 | |

*The instructions at the beginning of the questionnaire directed respondents to skip questions 1 through 7 if all software costs are expensed. Assuming that all nonresponding firms expense maintenance and enhancement cost,

| | | | | |
|---|---|---|---|---|
| Expense as incurred | 205 | 94.9% | 181 | 83.8% |
| Capitalize and amortize | 11 | 5.1 | 35 | 16.2 |
| | 216 | | 216 | |

Table 6.5 shows that the vast majority of companies expense maintenance (94.9%) and enhancement costs (83.8%) as incurred.

Question No. 5: During the amortization period, are there periodic financial reviews or checkpoints to determine the need for write-offs of assets?

During the course of the interviews, several executives mentioned that part of their company's control system included a series of checkpoints along and beyond the software development cycle to determine whether certain expenditures had continuing expected economic benefit. If it was determined that they did not, whatever costs had been accumulated were then expensed. These executives sometimes asked the interviewer whether any other interviewees had mentioned their policies in this regard, and if so, what their policies were.

TABLE 6.6

PERIODIC FINANCIAL REVIEW POLICY

QUESTION 5 - SOFTWARE USERS

| | Number of Responses | Percentage |
|---|---|---|
| Yes | 90 | 62.5% |
| No | 54 | 37.5 |
| Firms not responding | 72 | |
| Total | 216 | |

Note: Most of the firms not responding probably expense software costs.

Five-eighths of the firms responding to this question have periodic financial reviews or checkpoints during the amortization period to determine the need for a write-off of assets. Many firms did not respond to this question because they expense rather than capitalize software costs. (See Table 6.6.)

Question No. 6: Software costs appearing on the balance sheet represent what percent of total assets?

This question is identical to Question No. 3 of Chapter 3. It was asked in order to determine how material software assets are as a percentage of total assets.

TABLE 6.7

SOFTWARE COSTS APPEARING ON BALANCE SHEET
AS A PERCENTAGE OF TOTAL ASSETS

QUESTION 6 - SOFTWARE USERS

| Percent of Total Assets | Number of Companies | Percent of Total | Cumulative Percentage |
|---|---|---|---|
| 0 - 4.9% | 141 | 97.9% | 97.9% |
| 5.0 - 9.9 | 2 | 1.4 | 99.3 |
| 10.0 or more | 1 | 0.7 | 100.0 |
| Total | 144 | | |

Table 6.7 shows that virtually all of the companies surveyed have negligible software costs appearing on the balance sheet. If materiality is defined as 5 percent of total assets, then only three companies out of 144 (2.1%) have a material amount of software costs on the balance sheet. If materiality is 10 percent of total assets, then only one company (0.7%) has a material amount of software costs. That company reported software assets totaling 20 percent of total assets. Responses to the vendor questionnaire on this same point revealed a higher percentage, which is to be expected, since vendors are in the business of creating and marketing software (see Chapter 3, Table 3.5). The only companies included in this table are the ones that capitalize at least some software costs. Companies expensing all software costs were excluded.

Question No. 7: Software costs that are not expensed are capitalized because: (a) the matching concept; (b) an asset has been created; (c) capitalization improves our ability to raise capital; (d) capitalization improves net income and EPS; (e) other (Specify).

This question was asked in order to determine the reason(s) for choosing the software policy. The listed possibilities were chosen because these listed reasons were the ones that kept being given during the course of the interviews. However, space was provided to add other reasons, which made the question both directed and open-ended.

TABLE 6.8

REASONS FOR CAPITALIZATION OF SOFTWARE COSTS

QUESTION 7 - SOFTWARE USERS

| Reason | Number of Responses |
|---|---|
| The matching concept | 82 |
| An asset has been created | 62 |
| Capitalization improves our ability to raise capital | 3 |
| Capitalization improves net income and EPS | 3 |
| Other | 20 |

Notes

(1) Some companies did not respond.
(2) Some companies gave more than one response.

The two most frequently mentioned reasons for capitalizing software are because of the matching concept and the belief that an asset has been created. (See Table 6.8.) Other reasons included:

1. Enhancement of net income, EPS and ability to raise capital;

2. Software is accounted for in the same manner as hardware because of bundling or otherwise;

3. Compatibility with tax treatment; IRS requires it;

4. Purchased software costs are readily identifiable;

5. The licensing agreement spans more than one accounting period.

The view of software vendors on this point were similar (see Chapter 3, Table 3.8).

The lack of depth in this question (and that of question number 8) and the consequent ambiguous quality of the answers was acknowledged in the opening review of this chapter. Nevertheless, it is argued that the following tentative impressions arise:

I. A seemingly unquestioning adherence to a basic axiom of accounting dogma, namely the matching principle, contains little of reasoned analysis based on undeniably sound principle. The basic concept of the matching of income and expenditure in a common period is reasonable enough, though even to this, adherence of cash flow accounting or event accounting would take exception. However, it is in the transfer from concept to application that the greatest difficulties of measurement and valuation lie, as the controversy concerning inflation accounting will testify (see Robert W. Mcgee, Accounting for Inflation, Prentice-Hall, Inc., 1981).

II. Equally, the mere belief "that an asset has been created" can scarcely be defined as a principled argument. But of course the brevity of the statement may not do justice to the underlying belief.

III. Of the five supplementary reasons, expediency is clearly the motivation for reason no. 4. Reason nos. 2 and 4 clearly relate to ease and economy in accounting. Reason nos. 1 and 3 clearly relate to demands for bottom line accounting (and it would be interesting to know what tests had been applied or proof obtained by those advancing them). Reason no. 3 also shows ignorance of the tax law, because

the IRS does not require that the treatment for tax and financial accounting reporting purposes (see Tables 3.24, 3.25, 3.26 for software vendors; and Questions 15 and 16 of this chapter and Tables 6.15 and 6.16 for software users). Only reason no. 5 has any significant element of principled argument and even this has a naive air about it.

Question No. 8: Software accounting costs that are not capitalized are expensed because: (a) such costs are considered research and development; (b) uncertainty as to realization makes expensing prudent; (c) R&D cost elements are not easily separated from non-R&D costs, so all costs are expensed; (d) our CPA firm strongly recommends that such costs be expensed. Management is of the opinion that certain software costs should be capitalized; (e) they are immaterial in amount; (f) they are expensed for tax purposes, and we want to use the same accounting method per tax and book whenever possible; (g) other (Specify).

This question was also asked in order to determine the reasons behind the accounting policy. The reasons listed were included because these were the most frequently given reasons given during the interviews. However, space was provided to give other reasons as well, and several respondents took advantage of this opportunity.

TABLE 6.9

REASONS FOR EXPENSING SOFTWARE COSTS

QUESTION 8 - SOFTWARE USERS

| Reason | Number of Responses |
|---|---|
| Uncertainty as to realization makes expensing prudent | 75 |
| They are immaterial in amount. | 72 |
| They are expensed for tax purposes, and we want to use the same accounting method per tax and book whenever possible | 54 |
| Such costs are considered research and development | 32 |
| R & D cost elements are not easily separated from non-R & D costs, so all costs are expensed | 28 |
| Our CPA firm strongly recommends that such costs be expensed. Management is of the opinion that certain software costs should be capitalized | 4 |
| Other | 26 |

Notes

(1) Some companies did not respond.
(2) Some companies gave more than one response.

The most frequently given reasons for expensing rather than capitalizing software are listed in Table 6.9. Other reasons included:

1. Software maintenance costs are period costs;

2. The realization period is short;

3. Expensing is conservative;

4. Software is a cost of doing business;

5. The on-going expense would be about equal to the amortization;

6. It is difficult to measure the cost of internally constructed software, so it is expensed;

7. Costs incurred subsequent to the implementation of the system that do not extend to its useful life are expensed;

8. Useful life is difficult to estimate, so software costs are expensed.

Software vendors had similar reasons for expensing software (see Chapter 3, Table 3.9).

Respondents who answered "a" or "b" could have a software accounting policy based either on expediency or principle, depending on whether their decision was reasoned or not. Reasons "c", "d", "e" and "f" are clearly based on expediency, which lends additional credence to the hypothesis that software accounting policy is based to a great extent on expendiency rather than reasoned principle.

Of the eight supplementary reasons given, reasons 1, 2, 4, 5, 6 and 8 are clearly based on expediency. Reason no. 3 pays lip service to the principle of conservatism. Reason no. 7 accords software a treatment that is similar to other maintenance or repair expenditures, and may be based, in part at least, on reasoned accounting principle.

Question No. 9: How are (purchased and internally developed) software costs reflected on the balance sheet?

This question was included in order to shed some light on how companies classify their software on the balance sheet. During the interviews it was discovered that companies are not consistent in their classification, and it was hoped that the responses received to this question would uncover the frequency with which the various possibilities were chosen in practice.

TABLE 6.10

BALANCE SHEET CLASSIFICATION OF CAPITALIZED SOFTWARE

QUESTION 9 - SOFTWARE USERS

| | Purchased | | | | Internally Constructed | | | |
|---|---|---|---|---|---|---|---|---|
| | Systems Software | | Applications Software | | Systems Software | | Applications Software | |
| Classification | Number of Responses | Percentage | Number of Responses | Percentage | Number of Responses | Percentage | Number of Responses | Percentage |
| Not included in balance sheet | 81 | 36.8% | 77 | 36.7% | 159 | 83.2% | 161 | 82.1 |
| Current asset | 14 | 6.4 | 12 | 5.7 | 5 | 2.6 | 4 | 2.0 |
| Included in fixed assets without separate disclosure | 70 | 31.8 | 67 | 31.9 | 10 | 5.2 | 14 | 7.1 |
| Other noncurrent assets | 51 | 23.2 | 46 | 21.9 | 11 | 5.8 | 12 | 6.1 |
| Footnote disclosure | 2 | 0.9 | 3 | 1.4 | 1 | 0.5 | - | 0.0 |
| Other | 2 | 0.9 | 5 | 2.4 | 5 | 2.6 | 5 | 2.6 |
| Totals | 220 | | 210 | | 191 | | 196 | |

Note: Some companies gave more than one response.
Others did not respond at all.

SUMMARY

| | | | | |
|---|---|---|---|---|
| Most frequently chosen response (other than expense) | Include in fixed assets | Include in fixed assets | Other noncurrent assets | Include in fixed assets |
| Second most frequently chosen response | Other noncurrent assets | Other noncurrent assets | Include in fixed assets | Other noncurrent assets |

About one company in three does not include purchased systems software (36.8%) or purchased applications software (36.7%) on the balance sheet. (See Table 6.10.) For those companies that do include purchased software on the balance sheet, it is most often included in fixed assets, with other noncurrent assets as the second choice.

More than four companies out of five do not include internally constructed systems software (83.2%) or applications software (82.1%) on the balance sheet. For those that do, the most frequent inclusions are either as other noncurrent assets or as fixed assets. User responses differ slightly from those of vendors (see Table 3.4).

Question No. 10: If software is leased, are the accounting rules for capital leasing considered when determining how to account for the software cost?

This question was included at the request of several panel members, apparently because their companies were struggling with the question of whether software leasing is subject to the leasing rules.

TABLE 6.11

ACCOUNTING FOR LEASED SOFTWARE

QUESTION 10 - SOFTWARE USERS

| Category | Number of Responses | Percentage |
|---|---|---|
| Yes, as a matter of corporate policy | 75 | 41.4% |
| Yes, if the cost is more than a certain dollar amount | 29 | 16.0 |
| No | 65 | 35.9 |
| Other | 12 | 6.6 |
| No response | 35 | |
| Total | 216 | |

For leased software, the majority of companies (57.4%) consider the accounting rules for capital leasing either as a matter of corporate policy (41.4%) or in cases where the cost is more than a certain dollar amount (16.0%). (See Table 6.11.) For those companies that checked "other," the most frequently given comments were:

1. We don't lease software; not applicable.

2. None are of a capital nature.

3. Only if tied to leased hardware.

Response to this question also reveals a certain amount of expediency is involved.

Question No. 11: Do you think the accounting treatment for purchased software should be different than the accounting treatment for comparable internally developed software?

This question was asked in order to determine whether, in the minds of accounting executives, purchased software should be accorded a different accounting treatment than comparable internally developed software. Responses received might shed some light on whether a company's reasoning was based on expediency or reasoned principle.

TABLE 6.12

ACCOUNTING TREATMENT OF SOFTWARE COSTS

QUESTION 11 - SOFTWARE USERS

| | Number of Responses | Percentage |
|---|---|---|
| Yes | 67 | 30.9% |
| No | 123 | 56.7 |
| No opinion | 27 | 12.4 |
| Firms giving two responses | (1) | |
| | 216 | |

When asked whether the accounting treatment for purchased software should be different than the accounting treatment for comparable internally constructed software, the majority of software users (56.7%) said "no," which corresponds closely with the percentage of software vendors (56.2%) "no" responses (see Chapter 3, Table 3.15). About three companies in ten (30.9%) felt that the accounting treatments should be different. The most frequently given reasons (see Table 6.12) were:

Same Treatment

1. The utility of the software, whether purchased or constructed internally, is the same. They both provide the

same result. The method of acquisition should not dictate accounting treatment.

2. An asset is created whether it is purchased or constructed internally.

3. If comparable software exists, it may still be of economic benefit to construct the software internally. Why penalize a company by requiring a different accounting treatment?

4. If comparable software exists, internally constructed software probably is not a R & D effort.

5. Leads to skewed decisions for make/buy analysis when user has budget constraints. Implies internally constructed software is substantially uncertain as to success of effort, which is not consistent with business assumptions in project authorization.

6. Consistency.

7. Software is software.

8. All software should be expensed at time of purchase or as internally constructed.

9. The decision to capitalize any costs should be based on whether the costs represent a bona fide asset and meet a recoverability test.

10. The matching principle would require that costs be associated with benefits regardless of how procured.

Different Treatment

1. Purchased software has a fixed life payout evaluation. Internally constructed software is related to basic operations without a finite cost or benefit.

2. As a practical matter, a determination between system development costs and ongoing system utilization and R & D costs is not worthwhile to split out for the amounts involved.

3. Expensing internally constructed software provides a legitimate means to reduce taxable income as well as the tax liability.

4. The cost of purchased software is readily determinable. It is more difficult to measure the cost of internally constructed software.

5. Guidelines need to be developed to address the control and maintenance of internally constructed software.

6. Internally constructed software is an R & D expenditure.

7. Differences in matching costs and benefits.

8. The record keeping necessary for internally constructed software would be extensive and probably not adhered to.

9. Internal costs for constructing software (salaries of systems personnel) are part of the ongoing costs of the systems department.

10. The effort required to identify cost for internally constructed software exceeds the value to the financial statements obtained by capitalization.

11. Because of the subjectivity involved, capitalization of the costs of internally constructed software could lead to abuses in order to improve reported net income.

12. Purchased software, to be saleable, must demonstrate its utility through numerous successful implementations. Internally constructed software is inherently more risky, and consequently the prospects of asset realization are much less certain.

13. Purchased software has a one-time cost. Internally constructed software has several costs involved, such as

salaries, supplies, computer time, etc., for an undetermined amount of time. The expense of the internal software should be recognized over the period of time it took to construct it.

14. Internally constructed software costs are mainly personnel costs. Personnel costs are not capitalized unless they become significant.

It must at once be concluded that there is a greater appearance of principled argument here than was evidenced when considering the issue of "capitalize v. expense." It is interesting to note the apparent conflict between the responses received to Question No. 1 (see Table 6.1), in which a good number of companies elected to expense developed software and capitalize purchased software, and the response to Question No. 11 (see Table 6.12).

However, a closer perusal reveals that most of the reasons advanced, for the most part, are still arguments of expediency, but with a gloss (veneer) of reasoned argument in support or definition of the expedient. Indeed, numbers 2, 6, 7 and 8 in the reasons for the "same" treatment, and numbers 6, 9 and 14 of those advanced in support of "different" accounting treatment are merely unsupported assertions rather than arguments. Numbers 2, 4, 7, 8 and 10 of the

reasons advanced for "different" treatment are essentially arguments of expediency (re: "cost of costing"). Numbers 3 and 5 in the "same" treatment arguments and numbers 3 and 11 in the "different" treatment reasons clearly have their origins in "bottom line" considerations. Some element of principle characterizes the remaining half dozen reasons, and numbers 1 and 9 of the reasons advanced for the "same" treatment and numbers 12 and 13 of the reasons advanced for "different" treatment especially create an impression that not all firms select their software accounting procedures without due regard for conceptual considerations. The majority impression, however, is one of arbitrary selection.

Question No. 12: What impact, if any, has the SEC software moratorium had on your company?

The moratorium applies only to software intended for sale, so it was expected that its effect on software user companies would be minimal. The responses to this question confirmed that assumption. Virtually none of the responding companies indicated that the moratorium had any impact on their company. One company indicated that the moratorium helped them to establish accounting guidelines. Another said that it caused them to defer the internal capitalization issue. A third company said it caused them to review

practices. Another said that it may influence the capital budgeting decision in 1984. A few companies were unaware of any moratorium.

Question No. 13: On which categories of software costs is the investment tax credit or R&D tax credit taken?

This question was asked in order to determine the company's tax policy and the frequency with which tax credits were taken in practice. It was also wondered whether software users' tax policies were similar to those of software vendors (Chapter 3).

TABLE 6.13

INVESTMENT CREDIT AND R & D CREDIT

QUESTION 13 - SOFTWARE USERS

| Category | Investment Tax Credit | | R & D Tax Credit | |
|---|---|---|---|---|
| | Number of Responses | Percentage* | Number of Responses | Percentage* |
| Internally constructed systems software | 5 | 2.3% | 77 | 35.6% |
| Internally constructed applications software | 7 | 3.2 | 80 | 37.0 |
| Purchased systems software | 97 | 44.9 | 23 | 10.6 |
| Purchased applications software | 90 | 41.7 | 23 | 10.6 |

* Percentages are computed based on 216 responses. Companies not responding to this question are assumed to have not taken a tax credit.

Table 6.13 summarizes the response to question 13, which shows that about four companies in ten take the investment tax credit on purchased systems (44.9%) and applications (41.7%) software, and a much smaller percentage take the credit for internally constructed systems (2.3%) and applications (3.2%) software. The vendor responses to a similar question provided a different response (see Chapter 3, Table 3.23). The Internal Revenue Service treats software as intangible and therefore not eligible for the investment tax credit unless the software is bundled with the hardware.

However, at least one court case has held that magnetic computer tapes are tangible property qualifying for the investment tax credit.

About one company in three takes the R & D tax credit for internally constructed systems (35.6%) and applications (37.0%) software, and a much smaller percentage of respondents take the credit for purchased systems (10.6%) and applications (10.6%) software. Software vendors, on the other hand, took the R & D credit as follows: internally developed software intended for sale (72.7%) and internal use (34.1%); purchased software intended for resale (11.4%) and internal use (6.8%) (see Chapter 3, Table 3.23). An in-depth summary of the research credit as it relates to software can be found in Chapter 14.

Question No. 14: How is software classified: (a) for federal tax purposes; (b) for state sales/use tax purposes; (c) for personal property tax purposes?

This question was asked to determine what treatment was being given in practice, and to determine whether classification differed based on tax advantages to be received as a result of the classification method chosen. Responses showed that the classification chosen did in fact reflect tax advantage a good part of the time.

TABLE 6.14

CLASSIFICATION OF SOFTWARE FOR TAX PURPOSES

QUESTION 14 - SOFTWARE USERS

| | Tangible | | Intangible | |
|---|---|---|---|---|
| | Number of Responses | Percentage | Number of Responses | Percentage |
| For federal tax purposes | 91 | 51.4% | 86 | 48.6% |
| For state sales/use tax purposes | 73 | 43.5 | 95 | 56.5 |
| For personal property tax purposes | 43 | 29.1 | 105 | 70.9 |

Notes

(1) Many companies did not respond to this question.
(2) Some companies gave more than one response for some categories.

Table 6.14 shows the responses to the question "How is software classified for federal, sales/use and property tax purposes?" The Internal Revenue Service classifies software as intangible unless it is bundled with hardware, so it may be inferred that a large portion of the 51.4 percent of respondents that classify software as tangible do so because it is bundled with hardware. However, some companies may classify separately priced software as tangible in order to take advantage of the investment tax credit. Furthermore, at least one court case has ruled that the full value of magnetic tapes is eligible for the investment tax credit. For vendor response to this question, see Chapter 3, Table 3.27.

For sales, use and property tax purposes, software is classified as tangible or intangible based on statutory or case law. Tangible property is generally subject to tax, whereas intangible property generally is not. For sales/use tax, the respondents were about evenly divided between tangible (43.5%) and intangible (56.5%) treatment. Companies doing business in several states may have checked both responses, since the classification differs by state. Issues relating to the sales, use and property taxation of software are discussed in Chapter 13. The Data Processing Management

Association position on software taxation is given in Appendix E.

For personal property tax purposes, the vast majority (70.9%) classify software as intangible, which seems to be in conflict with the responses given to the sales/use tax question. Another complicating factor is that some states classify "canned" software as tangible and "custom" software as intangible.

A comparison of the vendor responses to the software user responses reveals that vendors are far more likely to classify software as intangible for both federal and state purposes than are software users (Table 3.27), possibly because vendors have more to gain by doing so than users.

Question No. 15: Is the same software item ever: (a) capitalized for financial statement purposes and expensed for tax purposes; (b) capitalized for tax purposes and expensed for financial statement purposes?

This question was asked in order to determine the extent to which companies used different software accounting policies for book and tax purposes. Adopting the same treatment would tend to reflect either principled reasoning or expediency, whereas adopting different policies would tend to reflect bottom-line concerns.

# TABLE 6.15

**Comparison of Tax and Financial Statement Treatment of Software Costs**
**Question 15 - Software Users**

| | Number of Responses | Percentage |
|---|---|---|
| A. Capitalized for financial statement purposes and expensed for tax purposes? | | |
| Yes | 22 | 10.5% |
| No | 187 | 89.5 |
| Firms not responding | 7 | |
| | 216 | |
| B. Capitalized for tax purposes and expensed for financial statement purposes? | | |
| Yes | 16 | 7.7% |
| No | 191 | 92.3 |
| Firms not responding | 9 | |
| | 216 | |

The vast majority of companies treat software expenditures the same for tax and financial statement purposes. (See Table 6.15.) For those companies which give different treatments, the primary reasons given were:

Reasons for Capitalizing for Financial Statement Purposes and Expensing for Tax Purposes

1. Foreign tax regulations must be considered for multinational corporations.

2. Costs incurred for company personnel are expensed for tax, capitalized for book. Capitalization of these expenses is not accepted under IRS guidelines.

3. High cost of a single large applications project.

4. Impact on reported net income and EPS.

5. Cash flow and EPS.

6. The cost of certain major, multi-year projects are capitalized for financial statement purposes because they are material to the sponsoring organization. Such costs are expensed for tax purposes because they are not material on a companywide basis.

7. Aside from software bundled with hardware, only major systems, i.e., those costing in excess of $2 million, are capitalized for books. Policy is to generally expense all systems for tax and not request permission to capitalize. For tax, systems are only capitalized as a result of IRS audits or if bundled with hardware.

8. Only internally constructed software is treated differently for book and tax. The company is a cash basis taxpayer.

9. For tax purposes, Section 174 permits deduction of these expenditures. For financial statement purposes, these expenditures have continuing benefit.

10. Internally constructed software is being capitalized on the financial statements, but is being expensed on the tax return to be consistent with Rev. Proc. 69-21.

For vendor response to this question, see Chapter 3, Table 3.25.

Reasons for Capitalizing for Tax Purposes
and Expensing for Financial Statement Purposes

1. Financial accounting procedures treat purchased software costs as items of expense unless circumstances arise involving significant software purchase costs. Tax

accounting procedures treat purchased software costs as capitalized items the cost of which is to be recovered by amortization deductions ratably over a period of five years, as per Rev. Proc. 69-21, 1969-2 C.B. 303.

2. Occasional large expenditures for purchased software are expensed for financial statement purposes to reflect conservative accounting and are capitalized for tax purposes to demonstrate the matching concept.

3. Capitalization is required for tax purposes.

4. Systems are capitalized as a result of IRS audits or if bundled with hardware.

5. IRS regulations require capitalization.

6. All software is capitalized for tax purposes. Software expenditures less than a specified threshold amount are expensed for financial statement purposes.

For vendor response to this question, see Chapter 3, Table 3.25.

Bottom-line considerations seem to be present for reasons 1, 4, 5, 7, 9 under expensing for tax purposes and reason 4 under capitalizing for tax purposes. Expediency considerations seem to be present for reasons 1, 2, 3, 4, 5,

6, 7, 8 under expensing for tax purposes and reasons 1, 2, 3, 4, 5 and 6 under capitalizing for tax purposes. Only reason 10 under expensing for tax purposes seem to be based on principle, and even that reason is suspect.

Question No. 16: If software is capitalized for both financial statement and tax purposes, are the amortization method and time period used the same?

This question was asked in order to determine whether the amortization period for both financial reporting and tax reporting were the same. Prior to 1981, the response would have probably almost always been "the same" because tax law generally forbid the use of different useful lives for tax and financial reporting. However, with the advent of ACRS depreciation (see Chapter 14), different useful lives became much more common. Companies that classify software as tangible for federal tax purposes would probably use ACRS depreciation (an accelerated method having a shorter useful life than that used for financial statement purposes) for software that was placed in service after 1980 (when ACRS became effective). Classifying software as intangible would probably result in using the straight-line method over the same time period for financial and tax purposes. It is entirely possible that companies could use the ACRS method for

some software and the financial statement method for other software, because the tax treatment depends on when the software was placed in service.

TABLE 6.16

COMPARISON OF AMORTIZATION METHOD AND TIME PERIOD FOR FINANCIAL STATEMENT AND TAX PURPOSES

QUESTION 16 - SOFTWARE USERS

| | Number of Responses | Percentage |
|---|---|---|
| Yes | 110 | 79.7% |
| No | 28 | 20.3 |
| Firms not responding | 78 | |
| | 216 | |

Table 6.16 shows that the vast majority (79.7%) of firms responding to this question use the same amortization method and time period for capitalized software for tax and financial reporting purposes. Where a different amortization method or time period are used, reasons given were:

1. ACRS is used for tax purposes.

2. Tax treatment is non-GAAP and is chosen to maximize tax benefits.

3. Company policy is to amortize purchased software over three years, while for tax purposes it is amortized over sixty months as required.

4. Company policy is to use the straight-line method for financial reporting and an accelerated method for tax purposes.

5. Tax law specifies straight-line amortization method.

For vendor response to this question, see Chapter 3, Table 3.26. A discussion of depreciation as it relates to software is given in Chapter 14.

Question No. 17: What impact, if any, will the proposed Treasury Regulations on research and experimental expenditures, if adopted, have on your company with respect to software?

This question was asked in order to determine whether a company's research and development efforts are affected by tax policy. The research credit is clearly an attempt to encourage companies to expend more resources in certain research and development areas and many people argue that

using tax credits to influence corporate investment is ineffective. The response received to this question lends support to that argument.

Many respondents did not feel that the proposed Treasury Regulations on research and experimental expenditures would have a significant effect on their company. (These regulations are discussed in Chapter 14.) The following comments were made:

1. While the planned projects would continue, some of the cost justification for various current and future projects would be weakened.

2. We might back off on our position that it is tangible personal property; we might not take the investment tax credit.

3. The proposed regulation will have an unfavorable impact since costs of constructing computer software are not considered Sec. 174 expenses unless the program involves significant risks that it cannot be written.

4. Impact would be adverse, as it would restrict software available for the R & D credit.

5. It will keep us from claiming an R & D credit.

6. Our company could not claim R & D credits. This could affect policies on acquisition method; project profitability results.

Many respondents left this question blank. Others answered "none". The above six responses were the only ones that had any other comments.

Question No. 18A: If your primary business is manufacturing or transportation, annual sales for the most recent fiscal year were: (a) more than $1 billion; (b) $500 million to $1 billion; (c) less than $500 million.

Question No. 18B: If your primary business is financial services or a public utility, assets at the end of the most recent fiscal year were: (a) more than $5 billion; (b) $5 billion or less.

When this questionnaire was being constructed it was thought that a comparison of software accounting policies between large and small companies and between manufacturing and financial service companies would be made. However, upon further consideration, it was determined that, because the sample consisted of all large companies, such a comparison as to size would not be meaningful, because all members

of the sample were large. Furthermore, a comparison of policies based on type of company would not be meaningful because there were an insufficient number of categories to make meaningful comparisons.

TABLE 6.17

COMPANY PROFILE

QUESTION 18 - SOFTWARE USERS

| | Number of Responses | Percentage |
|---|---|---|
| A. If your primary business is manufacturing or transportation, annual sales for the most recent fiscal year were: | | |
| More than $1 billion | 95 | 48.0% |
| $500 million to $1 billion | 38 | 19.2 |
| Less than $500 million | 9 | 4.5 |
| B. If your primary business is financial services or a public utility, assets at the end of the most recent fiscal year were: | | |
| More than $5 billion | 18 | 9.1 |
| $5 billion or less | 38 | 19.2 |
| Companies not responding | 18 | |
| | 216 | |

Table 6.17 shows that nearly half (48.0%) of the respondents were manufacturing or transportation companies with annual sales in excess of $1 billion, with the remainder divided among smaller manufacturing and transportation companies (23.7%), financial service companies and public utilities (28.3%).

Question No. 19: Do you consider your company to be primarily involved in: (a) manufacturing; (b) financial services; (c) other services; (d) transportation; (e) public utility; (f) other (Specify)?

TABLE 6.18

TYPE OF COMPANY

QUESTION 19 - SOFTWARE USERS

| | Number of Responses | Percentage |
|---|---|---|
| Manufacturing | 141 | 66.2% |
| Financial Services | 54 | 25.4 |
| Other Services | 3 | 1.4 |
| Transportation | - | |
| Public Utility | - | |
| Other | 15 | 7.0 |
| Companies not responding | 3 | |
| | 216 | |

Most respondents were primarily involved in manufacturing (66.2%), followed by financial services (25.4%), other (7.0%) and other services (1.4%). (See Table 6.18.)

# CHAPTER SEVEN

# SUMMARY OF PART ONE

In Chapter one we reviewed the origins of software accounting and the problems that have developed over the years, especially since 1969, when IBM changed its accounting policy and started stating its software prices separately from those of its hardware. In that same year, the Internal Service issued its first pronouncement on software. Only three years after IBM made this move, state courts began deciding cases on the sales, use and property taxation of software.

Soon after, the federal courts started to hear cases on the qualification of computer software for the investment tax credit. Previously, cases had decided on the applicability of the investment tax credit to movies and records, two areas that relate closely to software, and two areas that had been discussed in detail by the state courts. The analogy between computer software and movies and records soon began creeping into the accounting literature, and it was advocated that software be accorded the same treatment as movies and records.

It was pointed out that several pronouncements of the Financial

Accounting Standards Board address the software accounting issue to some extent, but that these pronouncements are unclear and incomplete. In response to this lack of clarity and completeness, ADAPSO issued its own Exposure Draft on the subject, which led to the formation of an AICPA Task Force to study the matter further, which, in turn, led to the placing of this topic(as it relates to the sale or lease of software, at least) on the FASB agenda. The current rules were then summarized, and the author's preliminary views were stated.

Upon review of the literature and observing that more data was needed in order to make a determination as to what software accounting policy should be, it was decided that data should be gathered from published financial sources and from manufacturers and users of computer software. Chapter 2 consisted of a NAARS data base search of the financial statements of companies in the software industry in order to determine their software accounting policies, which are revealed either in the financial statement footnotes or in the body of the financial statements themselves. From an analysis of

this data, a trend began to emerge. It seemed that software vendor companies tended to capitalize purchased software and expense enhancement costs and internally developed software. This penchant for having different treatments for purchased and developed software also emerged from the interviews that were conducted prior to mailing of the questionnaires. At first glance, there tended to be no relationship between company size or field of operation and software accounting policy. A question was raised as to whether a company's software accounting policy was based, in part at least, on expediency, or whether it was based on reasoned accounting principle.

Chapter 3 reported the results of the survey that was mailed to software vending company executives. The information gathered in this survey provided additional proof that software vendors have different accounting policies for purchased software than they do for internally developed software. The reasons given for the different treatment provided a strong indication that many software accounting policies are based on expediency rather than reasoned accounting principles. The responses also revealed a bit of bottom-line concern,

which was reflected in the software accounting policy. Further evidence was obtained that seemed to indicate that there is no relationship between size or field of operation and software accounting policy, which confirmed the preliminary view obtained in Chapter 2.

The responses also provided a further indication, first raised in the interviews, that a software company's software accounting policy may have an effect on its ability to raise capital, and may have an effect on growth. Data on the classification of software as tangible or intangible was also gathered, as was data on the frequency with which software companies take advantage of the investment and research tax credits.

Chapter 4 attempted to reconcile the preliminary views stated in Chapter 2 with the data gathered and reported in Chapter 3. A number of things became more clear at this point. It became evident that software companies tend to expense software construction costs and tend to capitalize the costs of purchasing software. It also became

apparent that capitalized software costs are slotted in different places on the balance sheet by different companies. Companies also had a variety of methods for capitalizing software construction costs. Some companies capitalized only coding and testing costs, and some companies also capitalized some or most design costs as well. The evidence became increasingly strong that many companies base their software accounting policy on expediency or bottom-line considerations(short-term self-interest) or a combination of the two, although lip service may often be paid to generally accepted accounting principles.

The possibility of tax ignorance also emerged to a degree, because it seemed that companies were not fully using the tax laws to advantage, or were even formulating their software accounting policies on the erroneous belief that financial and tax accounting methods had to be the same. From the questions asked in the questionnaire it was not possible to determine the extent of this apparent tax ignorance, although there was a strong indication that it existed to some extent. There was an indication that companies

classify software as tangible or intangible based on best tax advantage, although the extent to which tax law affected classification could not be determined.

Chapter 5 examined footnote disclosure of the few software user companies that reveal their software accounting policy in their financial statements. Because the number of companies revealing their software accounting policies is so small in comparison to the total population, it could be that these companies have larger expenditures for software than the average public software user company, so their accounting policy for software may not be wholly indicative of all software users. However, additional evidence did emerge that software users tend to capitalize purchased software costs and tend to expense enhancement costs and software construction costs. Because the financial statements did not breakdown the software costs into their cost components, not many additional inferences could be made regarding their software accounting policies.

Chapter 6 summarized the data that was gathered in the questionnaire that was mailed to executives of software user companies. The principal objective of the questionnaire was to derive an informed view of current practice in accounting for software at a more detailed level than that relating simply to capitalizing or expensing. In particular, there was included an attempt to ascertain rather more clearly the extent to which accounting procedures relating to software costs were motivated by principle or accounting convenience or bottom-line considerations. The need to know more about the actualities of the current situation as a crucial input to the developing debate on software accounting meant that the informational requirement had to take precedence over the interpretive element. Consequently, the questions addressed to the issue of "why" rather than "how" are tentative and simplistic. The results accruing to them constitute not so much the foundations for finished conclusions about accounting motivations as the opening of a door to further research in this area.

Information was gathered as to the extent of capitalization and

the depreciation methods used to depreciate capitalized software. The reasons given for capitalizing or expensing software costs seemed to match closely those reasons given by software vending company executives, namely, that the software accounting policy chosen was often chosen for reasons of expediency, or bottom-line considerations, or both.

The responses to the questionnaire provided further evidence that software user companies have different accounting policies for purchased and developed software. Developed software costs tend to be expensed, whereas purchased software costs tend to be capitalized. Information was also obtained on the tax treatment companies give to their software expenditures, and it was determined that software user companies have a somewhat different approach to software taxation than do software vendors, although this difference could be caused by industry considerations.

As a result of the information obtained by the interviews with software vending company executives and the data gathered in their

questionnaire responses, it became clear that, for a substantial number of executives at least, software accounting policy has an effect on the ability to raise capital, and it may also have an effect on the company's stock price. In order to gather further information on this concern, it was decided that commercial lending officers and financial analysts should be contacted in order to obtain their views. Part II of this thesis explores this area of concern and reports on the results obtained.

## NOTE TO CHAPTER 7

## FASB HEARINGS ON SOFTWARE ACCOUNTING

Since this thesis was researched and written, the Financial Accounting Standards Board held Hearings in response to its Exposure Draft ("Accounting for the Costs of Computer Software to Be Sold, Leased, or Otherwise Marketed," August 31, 1984). These Hearings were held at the Waldorf Astoria in New York City on May 2 and 3, 1985. More than thirty individuals, representing various segments of the software industry, public and private accounting testified at the Hearing.

These Hearings afford a first view of relevant professional reactions to the sort of views put forward in this part of the thesis. These reactions are reported here, not so much in a spirit of research, as the recording of an important step in the debate on software accounting and because of their intrinsic interest.

The Exposure Draft, issued August 31, 1984, came about because

of a perceived lack of guidance on the topic of software accounting. At present, the majority of companies expense the costs of constructing computer software, but two-thirds of the companies surveyed as a part of this study capitalize purchased software. In August, 1983, the Securities and Exchange Commission issued a moratorium on the capitalization of certain computer software, pending a ruling by the FASB.

FASB Statement No. 2, "Accounting for Research and Development Costs," requires that research and development costs be expensed as incurred unless an alternative future use exists. FASB Interpretation No. 6, "Applicability of FASB Statement No. 2 to Computer Software," states that not all software costs are to be considered research and development costs. FASB Technical Bulletin No. 79-2, "Computer Software Costs," states that software costs not classified as research and development costs are not necessarily inventoriable or deferrable. APB Opinion No. 17, "Intangible Assets," states that intangibles acquired from others should be recorded as assets and amortized using the straight-line method unless some other method

is more appropriate. The Opinion also states that the cost of developing intangibles that are not specifically identifiable should be expensed as incurred. This Opinion does not address the issue of how to account for internally developed identifiable intangibles. Furthermore, the classification of software as tangible or intangible has not been clearly determined. Some courts and statutes classify software as tangible property for sales, use or property tax purposes; other courts and statutes classify software as intangible. The investment tax credit, which is available only for tangible property, may sometimes be taken for software expenditures.

## The Issues

One of the basic issues discussed was whether computer software costs should be treated like assets, capitalized, and placed on the balance sheet, or whether these costs more closely represent expenses, which belong on the income statement. Those favoring expense treatment argued that the useful life of software is difficult

to predict and is short in any event, and should be expensed in order to be consistent with prevailing industry practice. Another argument was that the costs involved are immaterial or difficult to measure, and should be expensed for reasons of expediency. Some expense proponents viewed software expenditures as research and development.

Those favoring capitalization viewed software as an asset and argued that the matching concept would be violated unless software expenditures were amortized over their expected useful life. Capitalization was seen to be conceptually more in keeping with reality, and the prevailing industry practice of expensing software costs was held to be an incorrect treatment of an expenditure that has all the attributes of an asset.

The Options

Those who testified generally chose one of the following three accounting treatments for software expenditures:

1. Expense all software costs. This view is in keeping with prevailing practice, and is the view espoused by the American Electronics Association and the Financial Analysts Federation.

2. Capitalize coding and testing costs and expense detail design expenditures, which are viewed as research and development costs. This view is espoused by the Financial Accounting Standards Board in its Exposure Draft.

3. Capitalize coding, testing and detail design costs. This view is held by the Accounting Standards Executive Committee of the AICPA, the Association of Data Processing Service Organizations(ADAPSO) and the National Association of Accountants.

Views of Participants

Of those testifying at the Hearing, about one-third favored expensing all software costs and two-thirds preferred some form of capitalization. More than 80 percent of those testifying opposed the Exposure Draft position, either because they favored expensing or because they thought detail design costs should also be capitalized. However, these statistics should not be considered as indicative of the total accounting and software company population. It is a well-known fact that the individuals who testify at FASB Hearings tend to be representatives of large companies and the Big-8 CPA firms. Smaller companies and smaller CPA firms do not have the resources or experts to send to FASB Hearings, so testimony tends to be skewed in favor of the larger groups. This problem has been plaguing the FASB since its inception, and the FASB does attempt to counter this bias by going out of its way to obtain the views of the smaller companies and firms.

## The Software Industry View

The various segments of the software industry were well represented. In one of the more dynamic presentations of the first day of testimony, Lawrence J. Schoenberg, Chairman of AGS Computers and Chairman of the Financial Practices Committee of ADAPSO, argued in favor of capitalizing coding, testing and detail design costs. ADAPSO represents more than 750 companies in various segments of the software industry, including eight of the top ten independent software companies, and was one of the early proponents of a standard on software accounting. He stated that this approach is conceptually sound and increases period to period comparability. Citing an NAA study, he also mentioned that inability to capitalize software reduces a company's ability to obtain debt.

MSA, one of the world's leading independent suppliers of applications software packages, also testified in favor of capitalizing coding, testing and detail design costs. Due to the predominant industry practice of expensing software construction costs, it was pointed out that the current earnings of many software

companies are penalized, because construction costs in the current year often result in revenue in future years. MSA disagreed with the FASB's classification of detail design costs as research and development activities. Detail program design was viewed as part of the implementation of a product plan and not an actual planning activity. It was also held that the capitalization of construction costs should cease and the amortization of such costs should begin when the product is deliverable rather than, as the Exposure Draft proposes, when the product is available to be sold, leased or otherwise marketed.

Informatics General Corporation, another large software company, was of the opinion that software construction costs, including detail design costs, should be capitalized, and that expensing all software construction costs is undesirable because it results in accounting for dissimilar events as if they were the same. Mobix Partners viewed detail design costs as being inseparable from coding and testing, which should be capitalized. Tesseract Corporation also believed that detail design costs should be recorded

as production costs rather than as research and development, since the research and development type of tasks are complete when the product design work has been completed. In addition, detail program design and coding are tasks that are often performed simultaneously, and establishing a policy which states that one part of the function is not capitalizable and the other part is, would create inconsistencies in application and reporting between companies.

First Financial Management Corporation, a $40 million publicly held company, was of the opinion that the expensing of detail program design and the capitalization of coding is inherently inconsistent. The detail program design was viewed as a part of the coding process, which should be capitalized. The program design was likened to the blueprint or architectural drawing of what will be constructed. Designs for a building or manufacturing facility used in the production of revenues would be capitalized and, in FFMC's view, the costs incurred for detail design should be accorded similar treatment.

Gesco Corporation pointed out that, in its experience, detail

program design costs are generally incurred after technological feasibility has been assured. It further argued in favor of allowing professional judgment to determine whether certain costs fall within the definition of research and development or construction. Boole & Babbage, Inc., another publicly traded software company, believed that detail program design costs may, in some cases, be virtually indistinguishable from the coding process, which should be capitalized. It was also stated that enhancement costs should be added to the original product costs and the combined amount should be amortized over the remaining product life.

Although many of the testifying software companies favored capitalizing coding, testing and detail design costs, a few favored the FASB position, except for some minor issues. One such company was IBM, which believed that the FASB should not be specific in defining a method of amortization. The proposed method is too rigid and difficult to administer and does not provide a reasonable matching of revenues and expenses. According to the IBM definition, coding and testing involve producing program instructions to carry out the

requirements described in the detail program design and the verification of the program instructions.

Infodata Systems, Inc., a public company, has been capitalizing costs since 1980, but believes the FASB Exposure Draft as written is too liberal in its interpretation of what costs should be capitalized. Intermetrics, a software company headquartered in Massachusetts, is of the opinion that the proposed Statement is likely to require companies to incur additional costs and increase the complexity of accounting treatment for software costs as well as increase potential abuses, but basically supports the Exposure Draft.

A substantial number of software company representatives oppose any capitalization of software costs. One of the more vocal opponents of capitalization is the American Electronics Association, which represents more than 2700 companies encompassing all segments of the electronics industry. The AEA took the position that all software development costs, including the costs of developing a product master, should be expensed as incurred in accordance with

FASB Statement No. 2 on research and development. One reason for this position is that, in its view, the software development process is very similar to other product development processes. Also, the risk and uncertainty of software development is similar to other types of product development and the proposed benefits of the Exposure Draft are outweighed by the costs of implementation. Furthermore, application of the Exposure Draft would entail subjective and inconsistent judgments, resulting in financial statements with reduced credibility and usefulness. It is interesting to note that the AEA and ADAPSO, while claiming to represent the same constituency, have positions that are diametrically opposed.

Cullinet Software, Inc., a leading independent supplier of packaged computer software products to the IBM and IBM-compatible mainframe markets, also favored expensing all software costs. Because of the risks inherent in successfully developing a marketable product, it is Cullinet's belief that, in a majority of instances, recoverability will be established at a point far into the development process. Consequently, the amount of capitalizable costs will be so

insignificant as to make capitalization unwarranted. In its view, the software industry is in an environment where uncertainty is high and where financial accounting pronouncements should be applied conservatively. To do otherwise would not be in the best interest of software companies, the industry and users of financial statements.

Cullinet also believes that internally developed software should not be accounted for on the same basis as purchased software. The issue of accounting for a purchased product differently than an internally developed product is common to all industries, it was pointed out. Furthermore, a product that is purchased is the result of an arm's length market determined price. Recoverability is much less subjective for a purchased product because many of the uncertainties regarding product development have been resolved.

Hewlett Packard Company also favored expensing all software costs, and expressed concern that the FASB was not fully aware of the underlying business and economic realities of the software issue. It was perceived that the Exposure Draft creates an artificial

distinction which would result in the capitalization of highly speculative or "soft" costs on the balance sheet. It was also thought that deferring the recognition of coding and testing costs would not result in providing meaningful information to financial statement users because the recoverability of the development costs of any given software project is uncertain and unverifiable, and capitalization and amortization would be applied inconsistently.

Lotus Development Corporation, which went from a start-up operation to a $100 million company in two years, also favored expensing all software costs. Lotus felt that the proposed Standard would not represent the best interests of the software industry or the investor community because comparability and consistency of financial information among software companies would be adversely affected and the requirements surrounding recoverability of capitalized costs and risk are very subjective. Furthermore, the industry would incur significant costs to implement the proposed standard and the costs would far exceed the benefits derived.

Creative Management Systems, Inc., a telecommunications software firm, also favored expensing. The view was expressed that manufacturing tends to be capital intensive and lends itself to capitalization, whereas software development is labor intensive and does not lend itself to capitalization. Uncertainty of accurately estimating the life of a software product also makes expensing prudent. For an example, the company cited the video software game Pong, which required thousands of hours of design, coding and testing to complete. When first introduced, the product's life and popularity seemed limitless. In less than one year, better and more technologically advanced programs had been introduced, resulting in little if any demand for Pong.

Digital Equipment Corporation favored the expensing of all internally developed software, but favored treating purchased software like other intangible assets. The Exposure Draft was opposed because of the risks of adverse effects on the quality of financial information inherent in software capitalization. It was also thought that the cost of implementing the proposed rule would be

excessive and that relevance and reliability problems would be caused due to the dependent relationship between hardware and software.

The John Fluke Manufacturing Company, a leading manufacturer of test and measurement equipment, disagreed with the definition of production process. Fluke testified that the costs of creating a working model of a software product, or a combined hardware/software product, should be expensed as incurred, and that software development is not a cut and dried process. Design, coding and testing are intertwined and virtually impossible to separate, and attempting to do so would be a nightmare.

North Star Ventures, Inc. was of the opinion that the ultimate recoverability of the costs associated with the development of a software product is so uncertain at any point in time that capitalizing those associated costs would seriously distort period-to-period and company-to-company comparisons which financial statements are purported to provide. Society for Visual Education, Inc., a developer of filmstrips, read-along books and

microcomputer software for school children, stated that there are many types of software being published, each with its own development procedures, and it is these varying procedures that make the proposed Statement unworkable in Society's segment of the industry. It was felt that monitoring recoverability would be extremely difficult. Software programs are frequently sold as adjuncts to texts, workbooks, games, filmstrips, audio cassettes and other audiovisual materials, and establishing what portion of the sale is attributable to the software disk itself would be a mathematical nightmare. It was thought that the best treatment would be to expense all software costs as incurred.

View of the Accounting Profession

The views of the accounting profession were also mixed. The Accounting Standards Executive Committee(AcSEC) of the AICPA published an Issues Paper calling for the capitalization of detail design, coding and testing costs, a view that is somewhat at odds with the proposed Statement. AcSEC agreed with the FASB Exposure Draft treatment of recoverability and amortization, and concurred with the FASB view that purchased software to be sold, leased or otherwise marketed should be capitalized on the same basis as software produced internally. AcSEC was of the opinion that detail program design costs should be capitalized if recoverability has been established, and disagreed with the FASB's tentative conclusion that detail program design is similar to the research and development activity described in FASB Statement No. 2. Detail program design was viewed as a lower level programming activity and that it is generally an implementation, rather than a planning, activity. If detail program design activity is necessary to establish technological feasibility, its costs should be charged to research and development as incurred; if it is not, its costs should be capitalized if the

recoverability criteria are met. Several changes to the glossary were also recommended.

Francis J. O'Brien, testifying for the accounting firm of Arthur Young, supported the thrust of the proposed Statement, but stated that a significant portion of the costs of detail program design are capitalizable, and urged the Board to change its conclusion on that point. He stated that the decision as to whether software activities are research and development should be made by determining the objective of the activities. Based on the firm's experience, in most cases detail program design is part of the implementation and production of a software product, not a "design" activity as the term is generally understood and used in Statement No. 2. It is not the objective of detail program design to establish technological feasibility, and, in most cases, it should not be concluded that the costs of detail program design are research and development costs. He also commented that the final Statement should not require straight-line amortization. For some longer lived products, significant sales are not expected in the first year or so, and

requiring straight-line amortization in such cases could cause distortion. He recommended that the ratio of current revenues to total anticipated revenues be used instead.

Bernard Doyle, Management Accounting Practices Committee Chairman (of the NAA) and Manager-Corporate Accounting Services for General Electric testified for the National Association of Accountants, as did Allen H. Seed, III, Chairman of the MAP Subcommittee on Statement Promulgation and Senior Consultant for Arthur D. Little, Inc. The National Association of Accountants, while stating that detail design, coding and testing costs of software intended for sale or lease should be capitalized, said that the FASB Statement should also address software intended for internal use, since there is currently no standard that addresses this very important topic.

On March 7, 1985, the NAA sent the FASB its Issues Paper

entitled Accounting For Software Used Internally, which outlines NAA's position. The NAA position was developed over a period of more than two years and involved much research. Executives of both software vendor and user companies were interviewed, and questionnaires were mailed to these groups as well as financial analysts and bankers. Based on this research, the NAA concluded that the process and types of costs incurred for developing software are similar for both internal use and for sale or lease. Certain costs are essentially research and development while others are not. If a company intends to develop software to establish a better accounting system, the process is likely to be similar to developing a software package to sell to its customers. For example, assume a company is considering establishing a full on-line computer system that will result in inventory entering into the system when the raw material is received, maintaining accounting control throughout the cycle, and ultimately generating the sales invoice when the manufactured goods are shipped. The company must decide that the project is worthwhile and attainable. In doing so, management is likely to apply criteria similar to those set forth in the Exposure Draft for assessing

recoverability of software to be developed for sale.

Several accounting firms that testified either agreed with the basic FASB position or favored expensing all software costs. Price Waterhouse testified that costs incurred after the detail program design stage should be eligible for capitalization, whereas all costs incurred prior thereto should be expensed. Touche Ross & Co. supported the conceptual foundation for the Board's requirements for accounting for the development and production of software, but expressed concerns about the difficulty of determining the recoverability of the costs of developing most new computer software products to justify capitalization. It was believed that, because of market uncertainty, the application of the FASB criteria would result in expensing the costs of most new computer software products now in development. However, enhancements of existing successful products are more likely to satisfy the capitalization criteria. Capitalization should not be precluded in those few circumstances in which a company is able to demonstrate recoverability of a new product.

The fact that many software products have short useful lives raises cost/benefit considerations regarding capitalization, and Touche Ross questioned the usefulness of capitalizing costs of software products with useful lives of less than two years. A recommendation was also made that the Board further clarify the distinction between maintenance and enhancements. The Touche Ross view is that the maintenance definition should focus on error correction and routine changes and additions, while the enhancement definition should focus on improvements that either extend product life or add new functionality to the existing software product.

Ernst & Whinney favored expensing all software costs because the capitalization criteria lack sufficient objectivity to permit reasonably consistent application of the proposed Standard in practice. Also, the current industry practice favors expensing, and changing methods would be costly. Furthermore, the software environment is rapidly changing due to technology and intense competition, resulting in high volatility and unpredictability, which

brings into question the recoverability of many software products.

Coopers & Lybrand agreed with the Board view that capitalization has merit, but was concerned that the practical problems inherent in implementing this concept may not have been adequately considered and could prevent a final Statement from achieving the desired objectives of increased comparability and relevance. Issue was taken with the Exposure Draft approach, which would result in an accounting distinction between detail program design activities and coding activities. The recoverability of some types of software products can generally be established before the detail program design is completed, and it would seem arbitrary to exclude certain costs from capitalization just because they are similar to costs considered research and development under FASB No. 2. From a conceptual standpoint it was felt that costs should be capitalized if they meet the definition of an asset regardless of the nature of the activity involved.

The Financial Executives Institute supported the Exposure Draft,

with minor exceptions. It was believed that the proposed Standard would have a positive effect on the industry and the users of financial statements and would be broad enough to recognize the diversity that exists in the industry. It was also thought that research and development and production activities are usually distinct and identifiable activities and that design is research and development, while coding and testing are not. It was also thought that recoverability can be predicted with a reasonable degree of certainty.

## The Financial Analysts' View

Several representatives of the financial analyst community also testified. The views expressed by these representatives were every bit as diverse as those expressed by the software industry and accountants. Paine Webber Mitchell Hutchins Inc. favored capitalization firstly because it is the correct approach to take, and secondly because the asset value of software is not currently being reflected in today's stock prices. A third reason was that, as a result

of discussion with clients, it was perceived that financial statement readers can understand and support capitalization once the hysteria has been stripped away.

Hambrecht & Quist testified in opposition to the Exposure Draft. According to the firm's estimate, close to 50 percent of what is now classified by software companies as research and development would qualify for capitalization under the proposed standard. Although this change could potentially have a very positive effect on earnings, the potential effect cannot be quantified because of the lingering ambiguity over what type of software development should be considered recoverable. It was felt that the proposed rules are jeopardized by their own vagueness.

Alex. Brown & Sons, Inc., while recognizing that developed software products are among the principal operating assets which vendors of such products have, opposes capitalization of software development expenses because of a lack of an operable definition regarding what costs may be capitalized. Investors would be better

served by maintenance of the status quo rather than face the potential for inconsistent application of the proposed rules.

Morgan Stanley also favored expensing all software costs because adoption of the proposed standard would result in a greater divergence in practices. Capitalization of software costs also conflicts with current tax law treatment, in Morgan Stanley's opinion. Finally, the practical value of applying the proposed standard is questionable, and the costs associated with its implementation were thought to far outweigh the benefits to be gained.

The Financial Analysts Federation also favored expensing all software costs because the economic life and revenue projections for a new product must be deemed highly unpredictable. Furthermore, the classification of software development costs is highly subjective and arbitrary, and such arbitrariness may lead to potential abuses. The principle of conservatism should govern.

## Software User Company Views

Only two software user companies testified at the hearings. ITT, a company which uses and also sells software, testified in favor of capitalizing coding, testing and detail program design. Tests of recoverability and feasibility were thought to be considered and decided before the detail design phase of the software construction process. General Motors found the Exposure Draft to be acceptable as written.

## Summary

If one statement can be made about the hearings, it would be that consensus was not achieved. Members of the software industry cannot agree on which method best accounts for software construction costs. Some favor expensing while others favor some form of capitalization. The accounting profession and financial analysts are also split. Although only two software companies testified at the hearings, an analysis of their comment letters reveals that this group is also split. Whatever method is chosen, a substantial number of software companies, accountants, financial analysts and software user companies will be dissatisfied.

# CHAPTER EIGHT

# PRIOR STUDIES OF THE EFFECT OF CERTAIN ACCOUNTING POLICIES ON BANK LENDING DECISIONS AND STOCK PRICE

## BACKGROUND

During the course of the interviews, several interviewees expressed the view that the inability to place software costs on the balance sheet would adversely affect a software firm's ability to raise capital. This feeling was reinforced by the responses received to the questionnaire that was sent to software vendor companies. In that questionnaire (see Chapter 3), 36.4 percent of privately held software companies and 17.0 percent of the public companies surveyed agreed that the inability to include software costs on the balance sheet adversely affects the ability to raise capital. (Question No. 12)

A small minority of private(10.8%) and public(9.8%) companies thought that the inability to include software costs on the balance sheet would adversely affect the interest rate their company must pay to obtain capital(Question No. 13). A large number of private(51.4%) and public(33.3%) companies believed that if all

software development costs were expensed rather than capitalized, the level of these expenditures for software companies would have to be much lower; companies would be forced to put a cap on investment in new product programs in order to reflect good earnings performance to shareholders(Question No. 14). A significant number of private(45.9%) and public(31.4%) companies also believed that if all software costs were expensed rather than capitalized, the price of their company's stock, if publicly traded, would be adversely affected(Question No. 15). A minority of private(32.4%) and public(16.0%) companies thought that if all software development costs were expensed rather than capitalized, their company's long-term growth would be adversely affected(Question No. 16).

The view that accounting policy affects a company's stock price or the ability to raise debt capital has been expressed a number of times in the literature. In 1965, J. L. O'Donnell [1]examined the price earnings ratio trend of 37 public utilities for the period 1949 throught 1961, and determined that accounting policy can affect stock price. His second study[2] produced the same result. On the other

hand, Edward L. Summers studied the effect of investment tax credit, interperiod tax allocation, and funds flow statements of stock prices in the airline industry and found no statistically significant impact.[3] George J. Staubus, in studying the association between several accounting variables and stock price, found that investors found income before depreciation to be more useful than income after depreciation.[4]

An experimental study conducted by R. E. Jensen[5] concluded that variations in depreciation and inventory accounting policies affected analysts' opinions. W. J. Bruns, Jr., concluded[6] that inventory policy does not affect pricing, advertising and production decisions. The three studies that T. R. Dyckman conducted reached conflicting results. His first study[7] concluded that variations in inventory methods can influence financial statement readers, a conclusion that is diametrically opposed to that reached by Bruns. Dyckman's second study[8] concluded that inventory method does not influence decision-making, but his third study[9] reached the opposite conclusion. Dopuch and Ronen,[10] using students for financial statement readers,

concluded that inventory policy does influence readers of financial statements. Mlynarczyk's study[11] comparing the flow-through and deferred method of tax accounting reached the same conclusion. Falk and Ophir found that investors react both to the content and form of disclosure.[12]

Beaver and Dukes[13] studied the relationship between depreciation methods and securities prices and concluded that the market is efficient. Their sample consisted of 54 companies that used accelerated depreciation methods for tax reporting and the straight-line method for financial reporting for 1963 through 1967. The study examined four forms of earnings variables: (A) earnings available for common stockholders deflated by the book value of common equity at the beginning of the period; (B) undeflated earnings available for common stockholders; (C) the first differences in series (A); and (D) the first differences in series (B). The study concluded that there is a significant relationship (beyond the 0.01 level) between unexpected earnings changes and unexpected price changes, which is apparent in a wide variety of models and across a wide range

of changes. The evidence is consistent with an efficient market and inconsistent with a narrow, naive treatment of accounting numbers. The findings in fgavor of market efficiency were, in the authors' opinion, important for two reasons(p. 557): "First, although considerable evidence supports market efficiency in general, there are few tests of market efficiency with respect to accounting data. The efficient market hypothesis is convincing largely because of the volume and consistency of empirical evidence supporting it across a variety of contexts. Hence, it is important to document market efficiency with respect to accounting data as well. Second, the findings are important because of the widespread belief in market inefficiency with respect to accounting data." They go on to say(p 558) that: "The findings are important because they are consistent with the hypothesis that the market adjusts for cross sectional differences in depreciation methods when setting the equilibrium prices of securities. It directly confronts the hypothesis of an inefficient market, which implies that the price-earnings ratios before adjustment would be the same."

In another study, [14] Dukes examined the effects of expensing research and development costs on security prices and reached a similar conclusion, namely, that reported earnings are systematically adjusted before they are impounded into security prices, which supports the efficient market hypothesis.

Prior to the issuance of FASB No. 2 on research and development costs, companies could either capitalize or expense R&D costs. After FASB No. 2, companies had to expense R&D costs as incurred A similar situation now exists for software construction costs At present there is no rule, so companies can either capitalize or expense software construction costs. The FASB now has a topic on its agenda that might require companies to use only one method Software construction has been likened to R&D expenditures, which might or might not have future benefit, so it might be reasonable to assume that the market might react the same way toward a change in software accounting policy as it did to the change in accounting for R&D costs. The Dukes study found(p. 184) that the security prices for the firms in the study reflected adjustments to reported earnings in

estimating permanent earnings consistent with the hypothesis that R&D generates future benefits for the firm. In other words, investors treat R&D costs like assets even though these costs must be expensed as incurred. The sample consisted of 41 firms in the chemicals, electronics and drug industries, and 11 firms that were classified as "other". All firms were required to have securities price histories from January, 1959 through June, 1968 and to have reported R&D expenditures somewhere in the annual report for the period 1955 through 1967.

There have been at least three major studies dealing with the effect of accounting policies on bank lending decisions. In 1970, T N. Jain conducted a study[15] of the effects of tax accounting methods on bank lending decisions. In that study, financial data for two companies were sent to 110 lending officers at large banks. The high response rate of 67 percent (74 responses) was due, in part, to the fact that most of the bankers were also contacted personally, and a follow-up letter was sent to the remainder. The financial data for the two companies was identical in all respects except for the

method of accounting for income taxes; one company used comprehensive allocation and one used partial allocation. The study found that the method of accounting for income taxes does influence lending decisions.

The second study[16] was conducted by A. A. El-Arabi in 1977. In this study, two sets of financial statements were prepared for two hypothetical firms. The data for both sets of financial statements were identical except for the accounting principles used. One set used the FIFO method of inventory valuation and the straight-line depreciation method. The second used LIFO and the sum of the years digits method. The sample consisted of two groups of banks. Group one consisted of 332 banks (of which 37 percent responded) and was sent the FIFO/straight-line data. Group two consisted of 331 banks (of which 32 percent responded) and was sent the LIFO/SYD data. The study found that the accounting principles used did affect the lending decision.

The third study was conducted by M. M. El-Maksy.[17] In this study, 1,050 loan officers from 240 banks were divided into seven groups. Responses were received from 267 lenders representing 143 banks. The first group received financial data containing no FASB No. 33 information. Each of the treatment groups received one piece of FASB No. 33 data (either constant dollar, current cost, or both) which was either presented in the notes to the financial statements or on the face of the income statement and notes. The study found that lending decisions for the control group were not significantly different statistically than those for the treatment groups, although lending decisions for the treatment groups were less favorable than those for the control groups in 94 percent of the cases. The groups receiving constant dollar data made lending decisions that were not significantly different statistically from those decisions made by lenders who received current cost data.

A principal objective of financial statements is to provide information relevant to the decision needs of creditors and investors. It therefore seems appropriate to investigate whether and to what

extent a given method of software accounting might impact upon the ability and terms of raising capital. Chapter 9 summarizes the questionnaire responses received from commercial lending officers using a methodology similar to that used by El-Arabi and El-Maksy. In those studies, different sets of financial data were sent to different groups of bankers. Chapter 10 summarizes the questionnaire responses received from commercial lending officers using a methodology similar to that used by Jain. In that study, two sets of financial statement data were sent to the same group of bank lending officers. Chapter 11 summarizes the questionnaire responses received from financial analysts using a methodology similar to that used by Jensen.

Unfortunately, the response rates to these questionnaire surveys was too low to permit a rigorous, in depth statistical analysis. Nevertheless, it is felt that there is a sufficient body of response to have some valid information content relevant to our purpose. The following results and discussion are offered in a spirit of illumination rather than proof.

## FOOTNOTES

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[2]J. L. O'Donnell, "Further Observation on Reported Earnings and Stock Prices," The Accounting Review, July, 1968, pp. 549-553.

[3]Edward L. Summers, "Observation of Effects of Using Alternative Reporting Practices," The Accounting Review, April 1968, pp. 257-265.

[4]George J. Staubus, "The Association of Financial Accounting Variables with Common Stock Values," The Accounting Review, January, 1965, pp. 119-134.

[5]R. E. Jensen, "An Experimental Design for Study of Effects of Accounting Variations in Decision Making," Journal of Accounting Research, Autumn, 1966, pp. 224-238.

[6]W. J. Bruns, Jr., "Inventory Valuation and Management Decisions,"The Accounting Review, April, 1965, pp. 345-357.

[7]T. R. Dyckman, "On the Investment Decisions," The Accounting Review, April, 1964, pp. 285-295.

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[9]T. R. Dyckman, "On the Effects of Earnings - Trends, Size and Inventory Valuation Procedures in Evaluating a Business Firm," in Jaedike, et. al. (eds.), Research in Accounting Measurement, (American Accounting Association, 1966), pp. 175-185.

[10]N. Dopuch and J. Ronen, "The Effects of Alternative Inventory Valuation Methods," Journal of Accounting Research, Autumn, 1973, pp. 191-211.

[11]F. A. Mlynarczyk, "An Empirical Study of Accounting Methods and Stock Prices," Empirical Research in Accounting: Selected Studies, 1969, pp. 63-81.

[12]H. Falk and T. Ophir, "The Influence of Differences in Accounting Policies on Investment Decisions," Journal of Accounting Research, Spring, 1973, pp. 108-116. Also see, H. Falk, "Use of Financial Statements for Investment Decision Making in Israel's Companies." Ph.D. dissertation, Hebrew University, 1971.

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[15]Tribhowan Nath Jain, "A Study of the Effects of Alternative Methods of Accounting for Income Taxes on Term Loan Decisions." Ph.D. dissertation, Michigan State University, 1970.

[16]Abdussalam Ali El-Arabi, "The Effects of Accounting Alternatives on Lending Decisions of Commercial Bankers." Ph.D. dissertation, the Louisiana State University and Agricultural and Mechanical College, 1977.

[17]Mostafa M. El-Maksy, "A Theoretical and Empirical Investigation of the Effects of FASB Statement No. 33 on Lending Decisions." Ph.D. dissertation, City University of New York, 1983.

# ACCOUNTING FOR SOFTWARE IN THE UNITED STATES

Volume Two of Three Volumes

Submitted By

ROBERT WILLIAM MCGEE

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School of Industrial and Business Studies

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# CHAPTER NINE

# RESULTS OF THE FIRST COMMERCIAL LENDING OFFICER SURVEY

## BACKGROUND

In the initial stages of this study, telephone interviews were conducted with more than twenty individuals representing several facets of the software industry. Eighteen individuals representing seven software manufacturers and internal users were interviewed personally on company premises. A questionnaire survey was also mailed to executives of software manufacturing companies. Information obtained from the interviews and mail survey revealed that a significant number of software company executives were of the opinion that the inability to reflect software expenditures on the balance sheet adversely affected their ability to raise debt or equity capital.

To test the validity of this view, two separate surveys, employing different research methodologies, were constructed and mailed to different groups of commercial lending officers. A third survey was mailed to financial analysts.

The basic methodology of the commercial lending officer surveys was to send to each participant financial data relating to one or both of two hypothetical software vendor companies, and to seek their reactions to principal questions about whether they would be prepared to lend to those companies, and subsidiary questions as to what con-

straints they would place on any such loan. The two companies were identical in all respects save that one capitalized software expenditures, whereas the other expensed them. In what follows, the reader may find it convenient to remember that "Campbell Company" stands for "Capitalizing Company", whereas "Edwards Company" stands for "Expensing Company".

A common objective of this approach is to test for any difference between what recipients have elsewhere said they would or would not do, and what they actually do do when confronted with a good simulation (c.f. Abdel-khalik referenced in note No. 1). In the present case, the test is partly of this nature, but is more oriented toward seeking confirmation of software vendors' expressed fears that supplier of capital would have their decisions influenced by the accounting method adopted.

The methodology is not without its problems. Suppliers of capital such as bank lending officers may well state that their decisions are not influenced by mere accounting policies and such may indeed be their intent, especially when confronted by a situation where they are explicitly made aware that what is under test is a difference in accounting treatment. (Indeed, one respondent to Questionnaire No. 2

(Chapter 10) described it as "an insult to his intelligence"). One banker who did not return the survey telephoned the National Association of Accountants (the surveys were mailed under NAA letterhead) to say that he felt the questionnaire was an insult to his intelligence. To paraphrase his comment: "Who do they think they're kidding? Anyone who gave different responses didn't read the material."

This problem can be avoided by sending the data of just one company to each respondent. However, this procedure is open to the objection that two different populations are being sampled. Therefore, in Questionnaire No. 2 (Chapter 10), the data on both companies was sent to a further sample of bank lending officers. The results of the two questionnaires were compared where relevant, and the results found to be very similar. The two questionnaires were not identical. The data given in Questionnaire No. 1 was very detailed, and responses indicated that bank lending officers in a significant number of cases based their answers on general bank loan criteria (capital structure, quality of receivables, etc.) rather than the specifics of an organization operating in the software industry. In Questionnaire No. 2, therefore, the information was presented in a more summarized form, and this did seem to improve the attention

given to software related specifics (though that may equally have reflected a more overtly comparative situation). Accordingly, although the results of the two questionnaires are nowhere significantly different, they cannot be regarded as being unquestionably mutually consistent.

## THE FIRST COMMERCIAL LENDING OFFICER SURVEY

Two questionnaires and related financial data were mailed to two separate groups of commercial lending officers,[1] chosen from banks having at least $500 million in assets. Data for Campbell Corporation, a company that capitalizes software costs with net income of $2,552,107, $2,213,154 and $903,131 for 1982, 1981 and 1980, respectively, was sent to 174 commercial lending officers. Campbell Corporation is a real, publicly held software company. The financial data sent was authentic. Only the company name was changed.

Data for Edwards Corporation was sent to 174 other commercial lending officers. The only difference between Edwards and Campbell was that Edwards expenses all software costs. Edwards had a $2,103,000 net loss in 1982 and net income of $498,000 and $301,000 in 1981 and 1980, respectively.

Twenty responses were received for Campbell and thirty for Edwards, for response rates of 11.5% and 17.2%, respectively. Responses to the individual questions are summarized below.

Question One: How large a line of credit would your bank be willing to grant to this company?

TABLE 9.1A

Question One Summary

| Campbell Corporation | | Edwards Corporation | |
|---|---|---|---|
| Number of Responses | Amount | Number of Responses | Amount |
| 5 | $ -0- | 17 | $ -0- |
| 1 | 750K-1M | 1 | 1M |
| 1 | 1M | 1 | 3-6M |
| 1 | 1-2M | 1 | 4M |
| 2 | 2M | 1 | 4.5M |
| 3 | 3M | 6 | 5M |
| 1 | 3.5M | 1 | 6M |
| 1 | 4.5M | 1 | 10M |
| 2 | 5M | 1 | 10-15M |
| 2 | 7M | | |
| 1 | 7.5M | | |
| Total 20 | | 30 | |

| | Campbell | Edwards |
|---|---|---|
| Mean | $ 2,794,000 | $ 2,417,000 |
| Median | 2,500,000 | 0 |
| Mode | 0 | 0 |
| Standard Deviation | 2,509,000 | 3,345,000 |
| Coefficient of Variance (S.D.) (Mean) | 0.899 | 1,384 |

The difference in sample means is not significant at the 20 percent level using the student-t distribution. See the appendix to this chapter for computations.

Table 9.1A includes 5 cases of "no loan" for Campbell and 17 cases of "no loan" for Edwards. It was expected that bankers would, on average, grant a larger loan to Campbell than to Edwards, but the results indicate no statistical difference at the 20 percent level. The average loan to Campbell ($2,794,000), however, is slightly larger than the average loan to Edwards ($2,417,000).

Table 9.1A summarizes the responses. Twenty-five percent of the commercial lending officers responding to the Campbell questionnaire would not grant a line of credit, compared with 57 percent of those responding to Edwards. For those who would grant a line of credit, the amounts ranged as high as $7.5 million for Campbell and $15 million for Edwards. The student t-test determined that the responses received from the two groups was not statistically different at the 20 percent level, even though the reject rate for Edwards (57 percent) was more than twice that for Campbell (25 percent).

TABLE 9.1B

Question One Summary

| Campbell Corporation | | Edwards Corporation | |
|---|---|---|---|
| Number of Responses | Amount | Number of Responses | Amount |
| 1 | $ 750K-1M | 1 | $ 1M |
| 1 | 1M | 1 | 3-6M |
| 1 | 1-2M | 1 | 4M |
| 2 | 2M | 1 | 4-5M |
| 3 | 3M | 6 | 5M |
| 1 | 3.5M | 1 | 6M |
| 1 | 4.5M | 1 | 10M |
| 2 | 5M | 1 | 10-15M |
| 2 | 7M | | |
| 1 | 7.5M | | |
| Total 15 | | 13 | |

| | Campbell | Edwards |
|---|---|---|
| Mean | $ 3,725,000 | $ 5,577,000 |
| Median | 3,000,000 | 5,000,000 |
| Mode | 3,000,000 | 5,000,000 |
| Standard Deviation | 2,399,000 | 4,331,000 |
| Coefficient of Variance (S.D.)/(Mean) | 0.644 | 0.777 |

The difference in sample means is significant at the 20 percent level.

In Table 9.1B, the "no loan" responses have been deleted. We can now determine what the average loan to Campbell and Edwards will be, given that a loan will be granted.

It was expected that bankers would be more likely to grant a larger loan to Campbell, but just the opposite proved to be the case. If a loan were granted at all, bankers would tend to loan $3,725,000 to Campbell and $5,577,000 to Edwards, a difference that is significant at the 20 percent level. However, only 13 bankers would lend to Edwards, and 2 of the 13 bankers would lend $10 million or more, so the average is somewhat skewed. The standard deviation for Edwards, moreover, is nearly twice that for Campbell.

Question Two: If your bank would not approve a line of credit for this company, please indicate why the application would be denied.

The banks denying Campbell's application responded as follows:

1. "Too many questions raised in financial statements, i.e., purpose of line (to replace other bank?), carry receivables, carry proprietary software costs? We also question the quality of the financial statements: there is no cash/funds flow, no reconcilement of net worth, no amortization of property and equipment on the income statement, capitalized leases do not appear to be on the balance sheet and write-off of computer costs (in 4-6 years) does not appear to be taking place on P & L."

2. "All needs appear to be permanent financing. It is impossible to determine if a line can be repaid by the liquidation of short term assets."

3. "Concerns: leverage, vulnerability of main product line in competitive environment; bulk of assets (computers and software) could become obsolete rapidly."

4. "The application would be denied until further information concerning the following could be obtained: an accounts receivable aging, projections indicating future profitability, capital expenditures, and the direction of the company. This would include projected income statements and balance sheets. We would also need a recent interim statement and a sources and uses of funds statement dated December 31, 1982."

5. "Interest expense on bonds will be 11 percent of $20 million, or $2.2 million, which would entirely deplete earnings based on 1982 figures."

The banks denying Edward's application responded as follows:

1. "Prior to my bank venturing a decision regarding this company's ability to receive from us a line of

credit and/or a term loan, more in-depth analysis would need to be made. Certainly, we would wish to view pro forma balance sheets (five years) and income statements (five years). The pro formas would aid us in obtaining some insight into the company's future financial needs and management objectives.

The tremendous sales growth that the company has enjoyed during the past five years has certainly been a contributing force in the company's need for external funds. The pro formas that the bank would require would aid us in determining how much of the external funds would be needed to support the increased receivables and inventory (short term), and how much external funds would be needed to support the increase in fixed assets (long term).

If the company's projections reveal a continuation of the rapid sales growth, we could conclude that repayment of a portion of the external funds would not be repaid until the rate of sales growth declines. Of course, those funds that will support the receivables and inventory will be considered to be self-liquidating.

We would request a break out of the G & A expenses so as to better calculate the company's G & A

We would request a break out of the G & A expenses so as to better calculate the company's G & A trends. Depreciation expense is needed to better analyze the company's cash flow and to calculate more revealing ratios.

The company's sales growth and interest expenses were very important in the decline of profitability for the Edwards Corporation. Next year, the servicing of the debenture, interest and sinking fund will add additional strain to profitability."

2. "There is a significant increase in long term subordinated convertible debt with sinking fund requirements of $1.5 million. Long term debt should provide a sufficient operating fund for the near term. There is no explanation for the loss other than increased cost of goods sold."

3. "The company is not generating sufficient cash to support its current financing costs."

4. "(a) Nature of business, (b) operating deficiencies; (c) risk of upcoming year; (d) uncertain nature of accounts receivable, operating expenses, payable and subordination convertible debentures; (e) increasing international business.

5. "In general, we do not make loans without first hand knowledge and assessment of management. In particular, it is not clear what the purpose of the line would be given their present abundance of cash resources."

6. "(a) Severe operating loss due to excessive increases in expenses; (b) insufficient financial data regarding expenses; (c) heavy current and long-term credit obligations; (d) no knowledge of management and its ability; (e) no interim financial data for any portion of 1983."

7. "(a) Revenue recognition methods; (b) product is subject to obsolescence without warning."

8. "(a) The investment in the building is too much for the company to carry (interest plus depreciation); (b) the three year life on computers used until 1981 was too long and the company has not shown an operating profit since the change."

9. "(a) Insufficient information; (b) source and application of funds statement for 1982 was not given; (c) value or potential future income in program library

being developed, market penetration and permanence for one to five years; (d) this company is highly leveraged, and if present liquidity is used, there will be no place to go except lender financial losses with no valuable assets to liquidate."

10. "The company is unable to generate operating profit. Cash flow is inadequate. Speculation is company having to discount below costs to meet competition."

11. "(a) Downward trend in savings; (b) no clear source of repayment; (c) no evident secondary source of repayment; (d) a $6 million revolver is already in place."

12. "There is a question as to the quality of receivables. An aging schedule would be helpful. The line of business makes the company a high risk venture."

13. "The company is insolvent based on the times interest earned ratio. It is also highly leveraged. Declining profitability and insufficient cash flow add to this credit risk. The company also has future debt obligations that would further deter their ability to service their debt."

14. "(a) Volatile industry; (b) weak operating earnings; (c) excessive fixed asset expansion for a company that does not have excess cash to allocate to fixed assets and the nature of which does not require ownership of land and buildings. The company can operate from leased facilities; (d) the company incurred operating losses that will be compounded by the interest expense on the additional debt; (e) evidence of unsound judgment on the part of management."

15. "(a) Existing $6 million line of credit, (b) deteriorating profits; (c) receivables collection."

16. "Account receivable turnover is slow (over 100 days). With an operating loss experienced in 1982, the company could be running into a situation of evergreen credit."

It is difficult to summarize or contrast these quotes with any degree of precision. However, the answers very roughly and imprecisely can be seen to fall into one of two categories, namely, those which seem to focus on or derive from specific consideration of the impact upon the firm of either being in the software business or materially engaged

in R & D type expenditures which imply significent outlays with uncertain returns ("specific" responses) and those which seem to derive from a banker's general review of more obviously traditional signals derived from the financial statements, such as capital structure, the quality of receivables, etc. ("general" responses). The "specific" responses themselves seem to be more sharply focused on either the overall business risk posture of the firm (the nature of the assets, the possibility of expense recovery) or on the quality of the earnings (interest cover, capital redemption and so on). Some responses seem to fall into more than one of these categories and some of the responses are flatly, mutually contradictory. (Vide response No. 3 and response No. 5 in the answers to the Edwards application). Nevertheless, by placing responses into more than one category where necessary, the responses might be analyzed as follows:

TABLE 9.2

Summary of Responses To

Question No. 2

Campbell
Respondents

| Answers Addressed To | | | | |
|---|---|---|---|---|
| Specific | | | General | |
| Risk | Earnings | Capital Structure | Quality of Receivables | General |
| 2 | 3 | 1 | 1 | 2 |
| 3 | | | 4 | |
| 4 | | | | |

Edwards
Respondents

| Answers Addressed To | | | | |
|---|---|---|---|---|
| Specific | | | General | |
| Risk | Earnings | Capital Structure | Quality of Receivables | General |
| 4 | 1 | 2 | 4 | 1 |
| 7 | 3 | 11 | 12 | 5 |
| 9 | 6 | 13 | 15 | 6 |
| 12 | 7 | 15 | 16 | 8 |
| 13 | 8 | | | |
| 14 | 9 | | | |
| | 10 | | | |
| | 13 | | | |
| | 14 | | | |
| | 15 | | | |

Notes: (a) "specific" = "comments appearing to derive from specific notice of impact of being in software business."

(b) Responses may be analyzed under more than one heading.

The most obvious impression is the impact that is caused by the reduction in the quality of earnings when software costs are expensed. Too much should not be made of this, however, because the discussion of responses to the similar question of Questionnaire No. 2 will particularly note the recognition accorded by bank lending officers to the more "conservative" orientation of accounting processes at Edwards. The "specific" responses of Campbell relate more to the doubts of lending officers about the overall risk posture of the company. The second material impression must be the number of "general" queries raised in reaction to the Edwards statements. It seems a not unreasonable speculation that this general concern of the Edwards financial condition was triggered by the apparently poor quality of earnings. The overall impression is that the Edwards respondents were more widely concerned about the financial condition of "their" company than were the Campbell respondents, and this was borne out in Questionnaire No. 2 by respondents with access to both companies.

Question Three: What rate of interest would you charge (For an unsecured line of credit*)

TABLE 9.3

Question Three Summary

| Campbell Corporation | | Edwards Corporation | |
|---|---|---|---|
| Number of Responses | Rate | Number of Responses | Rate |
| 5 | 0 | 16 | 0 |
| 1 | 11.00 | 1 | 11.00 |
| 1 | 11.25 | 4 | 12.00 |
| 1 | 11.58 | 1 | 12.63 |
| 2 | 12.00 | 1 | 12.75 |
| 1 | 12.22 | 1 | 12.78 |
| 1 | 12.50 | 1 | 13.16 |
| 1 | 12.78 | 4 | 13.33 |
| 1 | 13.00 | 1 | 15.00 |
| 1 | 13.06 | | |
| 1 | 13.16 | | |
| 2 | 13.33 | | |
| 1 | 13.53 | | |
| 1 | 13.75 | | |
| Totals 20 | | 30 | |

*The interest rate given was adjusted to take into account any compensating balance that would be required. The prime rate was 11 percent at the time the questionnaire was mailed, and the rate did not change until after all responses had been received.

Statistics - Excluding Zero Values

| | Campbell | Edwards |
|---|---|---|
| Mean | 12.57 | 12.76 |
| Median | 12.78 | 12.76 |
| Mode | 12.00 and 13.33 | 12.00 and 13.33 |
| Standard Deviation | 0.85 | 0.96 |
| Coefficient of Variance (S.D.)/(Mean) | 0.068 | 0.075 |

The difference in sample means is not significant at the 20 percent level.

Table 9.3 summarizes the response to this question. Interest rates have been adjusted to take compensating balances into account. There was not a significant difference (at the 20 percent level) between the rate charged Campbell and that charged to Edwards. This finding concurs with that found in the Jain study.[2] (However, see Chapter 10.)

Question Four: What additional terms would you impose?

The response to this question varied widely, but included in the following items:

1. compensating balance ranging from 5-15 percent, and/or a commitment fee ranging from 1/8 percent of 1/2 percent.

2. credit line granted up to 60-75 percent of accounts receivable; receive account receivable aging schedule monthly.

3. loan secured by inventory or other assets; security agreement on property, equipment and/or receivables.

4. quarterly financial data; 90 day review.

5. convert line to term loan with 3-5 year payout.

6. annual cleanup with zero balance for 30-60 days.

7. restrictions on capital expenditures, lease obligations, working capital, dividends, additional debt, bonuses, officers' salaries, changes in ownership.

8. require owner guarantee, approval of subordinated debt holders, key insurance.

In is virtually impossible to summarize meaningfully such a wide range of responses. There is no impression of any strength that the additional terms imposed upon Edwards would be more than those imposed upon Campbell. The information content to this question can be categorized as little more than "interesting supplementary detail."

Question Five: If, instead of a line of credit, the company had applied for a $2,000,000, five year loan, would your bank grant the loan?

Table 9.4 summarizes the responses to this question.

TABLE 9.4

Question Five Summary

| | Campbell Corporation | | Edwards Corporation | |
|---|---|---|---|---|
| | Number of Responses | Percentage | Number of Responses | Percentage |
| Yes | 10 | 50% | 9 | 30% |
| No | 10 | 50% | 21 | 70% |
| Totals | 20 | | 30 | |

The difference is significant at the 20 percent level (see appendix), which leads us to conclude that bankers would be more willing to grant a loan to Campbell than to Edwards.

Question Six: Do you consider this loan to be extremely risky, risky, marginal, safe or extremely safe?

TABLE 9.5A

Question Six Summary

| Do you consider this loan to be: | Campbell Corporation Number of Responses | Campbell Corporation Percentage | Edwards Corporation Number of Responses | Edwards Corporation Percentage |
|---|---|---|---|---|
| Extremely risky | 2 | 10% | 7 | 23% |
| Risky | 4 | 20 | 12 | 40 |
| Marginal | 5 | 25 | 9 | 30 |
| Safe | 9 | 45 | 2 | 7 |
| Extremely safe | 0 | 0 | 0 | 0 |
| Totals | 20 | | 30 | |

A further analysis and discussion of this question appears below.

TABLE 9.5B

Question Six Summary

| | | Campbell Corporation | | Edwards Corporation | |
|---|---|---|---|---|---|
| | Points | Number of Responses | Points | Number of Responses | Points |
| Extremely risky | 5 | 2 | 10 | 7 | 35 |
| Risky | 4 | 4 | 16 | 12 | 48 |
| Marginal | 3 | 5 | 15 | 9 | 27 |
| Safe | 2 | 9 | 18 | 2 | 4 |
| Extremely safe | 1 | 0 | 0 | 0 | 0 |
| | | 20 | 59 | 30 | 114 |
| Weighted Average | | 2.95 Marginal | | 3.80 Risky | |
| Median | | Marginal | | Risky | |
| Mode | | Safe | | Risky | |
| Standard Deviation | | 1.05 | | 0.89 | |
| Coefficient of Variance | | 0.36 | | 0.23 | |

Table 9.5 shows that bankers tneded to view a loan to Edwards as more risky than one to Campbell. The difference is significant at the 1 percent level.

The responses to the similar question in Questionnaire No. 2 (Chapter 10) gave very closely similar results, a moderately comforting result in view of the arbitrary assignment of the points weighting to each classification. A number of other weighting schemes were tested, but all gave much the same sort of result.

Question Seven: If your bank would not approve this term loan, please indicate why the application would be denied.

The responses to this question were similar to those given for Question Two.

Question Eight: What rate of interest would you charge for the term loan?*

## TABLE 9.6

### Question Eight Summary

| Campbell Corporation | | Edwards Corporation | |
|---|---|---|---|
| Number of Responses | Percentage | Number of Responses | Percentage |
| 10 | 0 | 21 | 0 |
| 1 | 11.75 | 2 | 12.00 |
| 2 | 12.11 | 1 | 12.50 |
| 3 | 13.33 | 2 | 13.33 |
| 1 | 13.50 | 1 | 13.68 |
| 1 | 13.61 | 1 | 13.89 |
| 1 | 13.89 | 2 | 15.29 |
| 1 | 14.69 | | |
| Totals 20 | | 30 | |

*The interest rate given was adjusted to take into account any compensating balance that would be required. The prime rate was 11 percent at the time the questionnaire was mailed, and the rate did not change until after all responses had been received.

### Statistics -Excluding zero values

| | Campbell | Edwards |
|---|---|---|
| Mean | 13.16 | 13.47 |
| Median | 13.33 | 13.33 |
| Mode | 13.33 | 12 and 13.33 and 15.29 |
| Standard Deviation | 0.91 | 1.23 |
| Coefficient of Variance (S.D.)/(Mean) | 0.07 | 0.09 |

Not significant at the 20% level.

Table 9.6 summarizes the responses to this question. The average interest rate charged to Campbell is 13.165 percent, compared to 13.473 percent for Edwards. Although the rate charged Edwards is somewhat higher than that charged Campbell, the difference is not significant at the 20 percent level.[3]

Question Nine: What compensating balance would be required?

Of the ten banks that would grant a term loan to Campbell, eight would require a compensating balance, ranging from 5 to 20 percent and averaging 9.7 percent. Of the nine banks that would lend to Edwards, six would require a compensating balance, ranging from 5 to 15 percent and averaging 10.6 percent.

There is an impression of a more onerous demand on Edwards, but the difference is not very significant.

Question Ten: What restrictions on working capital would be imposed?

Of the ten bankers that would lend to Campbell, three would require a minimum of $10 million in working capital and one would require $5 million. One bank would require that the current level ($10,614,400) be maintained. Others would require a current ratio of 1.5:1 to 2.1:1 or a working

capital/asset ratio of 18 percent or a working capital/revenue ratio of 35 percent. One bank would place no restrictions on working capital. Responses for the Edwards Corporation were similar. Tables 9.7 and 9.8 provide a more detailed breakdown of the responses for both companies.

Question Eleven: How much additional debt would the company be permitted to incur?

Five of the ten Campbell responses would not allow additional long-term debt without bank approval. Two banks would allow an additional $1 million; one bank would allow an additional $5 million. Two banks would require a debt/worth ratio of 2.0:1.

Of the nine Edwards responses, six would not permit additional debt. One bank would not place a restriction on additional debt. Another would allow $2.5 million for each of the next five years. One would require a 3.0:1 debt/worth ratio.

Question Twelve: What is the maximum annual dividend that could be paid?

Four of the ten Campbell responses would not permit any dividends. One bank would impose no restrictions on divi-

dends. Other respondents would allow dividends ranging from 10 to 50 percent of net income or cash flow.

Four of the nine Edwards responses would not permit dividends. Two others would permit dividends up to 25 percent of earnings. One would require a debt/worth ratio of 2.5:1.

Question Thirteen: What additional terms would you impose?

Most bankers would impose additional terms for both Campbell and Edwards. The additional terms are summarized in Tables 9.7 and 9.8.

Again it is difficult to arrive at any summary index of "restrictions' for comparison between the two companies. The material does not even lend itself to the rough and ready analysis model of question No. 2. The general impressions are that:

a. The working capital constraints placed on Edwards are marginally tighter.

b. The constraints placed on raising additional debt are marginally easier for Campbell.

c. There is little, if any, difference between the constraints imposed upon dividend payment by the two companies.

d. The terms of any one of the additional restrictions placed upon Edwards are not more onerous than those of the same sort of restriction placed upon Campbell; but there is a wide range of other restrictions placed upon Edwards.

So that overall, the impression is of a slightly more constrained set of conditions placed upon a loan to Edwards, but not very significantly more. This may be contrasted with the responses to the more generalized form of this question in Questionnaire No. 2 (Chapter 10), where the more restrictive environment of a loan to Edwards is much more clearly emphasized.

Table 9.7
Banks Approving a Term Loan for
Campbell Corporation

Summary of Restrictions

| Bank No. | Question 10 Working Capital | Question 11 Additional Debt | Question 12 Maximum Annual Dividend | Question 13 Additional Terms |
|---|---|---|---|---|
| 1 | $5 million minimum | $5 million | None | Term loan agreement with usual covenants. |
| 2 | $10 million minimum | No long term debt of more than $1 million without bank approval | No response | Liability to stockholders equity ratio not more than 1.8:1; No capital expenditures in excess of $1 million or purchase of treasury stock without bank approval. |
| 3 | $10 million minimum | None without permission, including additional leases | None without permission | Negative pledge on assets, no change in management, limit capital expenditures and lease commitments. |
| 4 | Not to go below current levels ($10.6M) | None without bank approval | None without bank approval | Net worth and liquidity tests. |
| 5 | Working capital as a percentage of assets should be maintained at 18% | Debt to worth ratio should not exceed 2.0 in 1983, 1.8 in 1984, 1.7 in 1985 and should continue to improve over the 5 year period | 10% of net profit after taxes | Secured by fixed assets. |
| 6 | Current ratio 1.5:1, working capital 35% of revenues | Debt to worth not to exceed 2.0:1, no additional long-term debt without approval | 10% of net cash flow from operations after long-term debt service | No net increase to fixed assets; courseware construction costs net balance maintained at 45% (or less) of annual dollar sales rate; quarterly financials. |
| 7 | $10 million minimum | Up to $1 million more, depending on use and need | None | No dividends or outside debt financing without prior approval. Not to be used for working capital. |
| 8 | Maintain current ratio (2.2:1) | None | 30% net after tax | None stated. |
| 9 | No restriction | Depends on purpose and ratio trends | No restrictions | Should be secured, guaranty of 20% stockholders, loan agreement, key insurance if necessary. |
| 10 | Minimum current ratio 2.0:1 | None | 50% of net income | None stated. |

Table 9.8
Banks Approving a Term Loan for
Edwards Corporation

Summary of Restrictions

| Bank No. | Question 10 Working Capital | Question 11 Additional Debt | Question 12 Maximum Annual Dividend | Question 13 Additional Terms |
|---|---|---|---|---|
| 1 | Required quick ratio 1.75:1, current ratio 2.00:1 | None | None | Security agreements on property and equipment, accounts receivable; $2 million guarantee of payment. |
| 2 | Minimum current ratio of 2:1 and working capital minimum $10 million | None without approval | None | Profitability within a predetermined time frame, actual performance tracking closely to projected, maximum leverage, negative pledge on assets, no other debt, dividends, no treasury stock purchases, no asset dispositions or mergers or acquisition unless prior approval given. |
| 3 | 1.2 current ratio, $8 million minimum | None | One year after profitable operations, 25% of after-tax earnings | Limit capital expenditures; leverage covenants-step up over course of loan; earnings recapture. |
| 4 | $7 million minimum | No other senior debt or capital leases without prior bank approval | None, without prior bank approval | Net worth floor of $11 million; no capital expenditures above a certain amount without approval; security, possibly, if no good evidence of turnaround. |

Table 9.8
Banks Approving a Term Loan for
Edwards Corporation

Summary of Restrictions

| Bank No. | Question 10 Working Capital | Question 11 Additional Debt | Question 12 Maximum Annual Dividend | Question 13 Additional Terms |
|---|---|---|---|---|
| 5 | Maintain 1.75:1 current ratio | None without bank approval | Dependent on earnings and cash flow | No borrowings from other sources, no pledging of any assets, minimum working capital ratio, maximum debt/worth ratio, quarterly financial statements. |
| 6 | $7 million minimum | No restriction stated | No restriction stated | At the end of 2 years, if the company has not returned to profitable operations, the bank would reserve the right to restructure debt repayment. |
| 7 | 1.75:1 current ratio<br>$5 million minimum | $2.5 million each year for next 5 years | 25% of earnings | Maximum debt/worth ratio of 2.00:1. |
| 8 | Secured by fixed assets with an 80% advance | Must maintain debt/worth ratio of 3.00:1 | Allowed if debt/worth ratio remains 2.5:1 or below | None stated. |
| 9 | 1.75:1 current ratio<br>$7.5 million minimum | No additional debt without bank approval other than normal trade payables | None | Security agreements on accounts receivables, all machinery, equipment, furniture, fixtures, 2nd lien on all previously encumbered fixed assets; restrictive covenants on capital accounts. |

Question Fourteen: The bank's total assets are:

| | Campbell | Edwards |
|---|---|---|
| More than $5 billion | 5 | 4 |
| $5 billion or less | 15 | 26 |
| | 20 | 30 |

A correlation between bank size and other questionnaire responses was not made due to the small sample size.[4]

Question Fifteen: The person completing this questionnaire has had years experience in a loan department.

| | Campbell | Edwards |
|---|---|---|
| Two or less | 9 | 9 |
| More than two, less than five | 0 | 3 |
| Five to ten | 8 | 11 |
| More than ten | 2 | 6 |
| No response | 1 | 1 |
| | 20 | 30 |

A correlation between years of loan experience and other questionnaire responses was not made due to the small sample size.[5]

Question Sixteen: The person completing this questionnaire is a(n):

| | Campbell | Edwards |
|---|---|---|
| Senior or executive vice president or other senior officer | 0 | 4 |
| Vice president, secretary or treasurer | 5 | 11 |
| Assistant vice president or other assistant officer | 12 | 13 |
| Not an officer | 3 | 2 |
| | 20 | 30 |

A correlation between title and other questionnaire responses was not made due to the small sample size.[6]

Question Seventeen: The office where this questionnaire is being completed is located in the:

| | Campbell | Edwards |
|---|---|---|
| Northeast | 1 | 8 |
| South | 10 | 9 |
| North Central | 6 | 8 |
| West | 2 | 4 |
| No response | 1 | 1 |
| | 20 | 30 |

A correlation between geographic location and other questionnaire responses was not made due to the small sample size.[7]

## SUMMARY AND CONCLUSIONS

Companies that do not capitalize software costs find it more difficult to raise debt capital than companies that do capitalize such costs. This fact was brought to the author's attention during the course of the interviews with executives from software vending companies, and was reinforced by the responses received on the software vendor questionnaire, which revealed that a substantial proportion of software vendor company executives feel that not capitalizing software costs hinders their ability to raise debt capital. Furthermore, the response to question six of the banker questionnaire (Campbell/Edwards) indicated that bank lending officers view a loan to a company that expenses software costs as significantly more risky than a loan to a company that capitalizes software costs.

Although not significant at the 20 percent level, some of the responses to the other questions in the banker questionnaire lead in the same direction. Seventeen of thirty (57%) lending officers would not grant a line of credit to Edwards, compared to five out of twenty (25%) for

Campbell. Question two revealed that one of the main reasons for the hesitancy to lend was the weak operating performance of Edwards, which several banks mentioned as a reason for not lending to Edwards, while none of the bankers that received the Campbell questionnaire gave poor operating performance as a reason for not granting a line of credit to Campbell. Due the company's software accounting policy, Campbell showed 1982 net income of $2,552,107, compared with a 1982 loss of $2,103,000 for Edwards.

For those banks that would lend to Campbell or Edwards, the rate of interest charged, although not significant at the 20 percent level, is higher for Edwards than for Campbell.

| | | Campbell | Edwards |
|---|---|---|---|
| Q-3 | Interest rate charged for a line of credit | 12.566% | 12.760% |
| Q-8 | Interest rate charged for a term loan | 13.165 | 13.473 |

When asked whether the bank would grant a $2 million term loan, half of the Campbell bankers responded that they would, compared to 30 percent for Edwards.

The interviews and questionnaire responses point to one conclusion: a company that capitalizes software costs will find it easier to raise debt capital than will a company that expenses these costs.

The responses to Question No. 5 confirm this view, as do the responses to some of the other questions in this questionnaire. Furthermore, fewer restrictions will be placed on a company that capitalizes software than on one that expenses software costs. Perhaps a higher interest rate would be charged to a company that expenses software costs, but this view was not proved conclusively in this chapter (but see Chapter 10 for a different result).

See Chapter 10, where similar questions were asked to a different group of bankers, using a different approach.

## FOOTNOTES

[1]A similar methodology was employed by A. A. El-Arabi, "The Effects of Accounting Alternatives on Lending Decisions of Commercial Bankers." Ph.D. dissertation, the Louisiana State University and Agricultural and Mechanical College, 1977. Also see Mostafa M. El-Maksy, "A Theoretical and Empirical Investigation of the Effects of FASB Statement No. 33 on Lending Decisions." Ph.D. dissertation, City University of New York, 1983, where a slightly different methodology was employed. Also see A. Rashad Abdel-Khalik, The Economic Effects on Lessees of FASB Statement No. 13, Accounting For Leases (Stamford: FASB, 1981).

[2]Jain, op. cit., p. 271. Jain also found no difference between groups for compensating balances, minimum working capital, maximum additional debt, maximum dividends or maximum officers salaries.

[3]Ibid.

[4]The El-Arabi study found that bank size was not a significant factor in the lending decision.

[5]The El-Maksy and El-Arabi studies found that experience is not a significant factor in the loan decision-making process.

[6]The El-Arabi study found that rank was a significant factor in the lending decision. However, El-Maksy found that sex and membership in a banking association were not significant factors.

[7]The El-Arabi and El-Maksy studies both found that the bank's geographic location is not a significant factor in the lending decision. El-Maksy also found that the amount of time spent responding to the questionnaire was not significant.

# CHAPTER 9

# APPENDIX

Note: The principal statistical test employed is the student-t test. However, a weakness of this test is that it assumes a normal distribution (it is a parametric test). As a precautionary measure, I decided to use a nonparametric test (Mann-Whitney) as well, just in case the distribution is not normal. (The El-Maksy study also used the student-t and Mann-Whitney tests)

Parametric Testing(Assumes a Normal Distribution)

The student-t distribution may be used to test the significance of differences in sample means for small samples. The formula is as follows(Freund & Williams, Modern Business Statistics, Prentice-Hall, p. 240):

$$t = \frac{x_1 - x_2}{\sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}} \times \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where $x_1$ and $x_2$ and the means, $n_1$ and $n_2$ are the sample sizes and $S_1$ and $S_2$ are the standard deviations.

TABLE 9.1A How large a line of credit would you grant?

Using the student-t test with the data in Table 9.1A, we can determine whether the difference in sample mean is significant. This table summarizes responses to the question: "How large a line of credit would your bank be willing to grant?" Where the response given was a range, the interval mid-point was chosen. For example, the $3-6 million range in the Edwards response has been taken as $4.5 million.

| Campbell | Edwards |
|---|---|
| $x_1 = 2.794$ | $x_2 = 2.417$ |
| $n_1 = 20$ | $n_2 = 30$ |
| $S_1 = 2.509$ | $S_2 = 3.345$ |

Degrees of freedom = $n_1 + n_2 - 2 = 20 + 30 - 2 = 48$

$$t = \frac{2.794 - 2.417}{\sqrt{\frac{(19)(2.509)^2 + (29)(3.345)^2}{20 + 30 - 2}} \times \sqrt{\frac{1}{20} + \frac{1}{30}}}$$

$$= 0.43$$

**Conclusion:** Since the t-score is less than 1.960, the difference is not significant at the 5 percent level. The difference is not significant at the 20 percent level either, as the t-score is not greater than 1.282.

Nonparametric Testing (Does Not Assume a Normal Distribution)

The Mann-Whitney test is a nonparametric test that can be used to determine whether two underlying populations are centered differently. (Thomas H. and Ronald J. Wonnacott, Introductory Statistics for Business and Economics, 2nd ed., Wiley/Hamilton, 1977, p. 481; Charles T. Clark and Lawrence L. Schkade, Statistical

Methods for Business Decisions, South-Western Publishing Company, 1969, p. 445).

Arranging the Table 9.1A data in rank order results in the following:

Table 9.9

Mann-Whitney Test Applied to Table 9.1A

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 0 | C | 11.5 | 11.5 |
| 0 | C | 11.5 | 11.5 |
| 0 | C | 11.5 | 11.5 |
| 0 | C | 11.5 | 11.5 |
| 0 | C | 11.5 | 11.5 |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0 | E | 11.5 | |
| 0.875M | C | 23.0 | 23.0 |
| 1.0M | C | 24.5 | 25.5 |
| 1.0M | E | 24.5 | |
| 1.5M | C | 26.0 | 26.0 |
| 2.0M | C | 27.5 | 27.5 |
| 2.0M | C | 27.5 | 27.5 |
| 3.0M | C | 30.0 | 30.0 |
| 3.0M | C | 30.0 | 30.0 |
| 3.0M | C | 30.0 | 30.0 |
| 3.5M | C | 32.0 | 32.0 |
| 4.0M | E | 33.0 | |
| 4.5M | C | 35.0 | 35.0 |
| 4.5M | E | 35.0 | |
| 4.5M | E | 35.0 | |
| 5.0M | C | 40.5 | 40.5 |
| 5.0M | C | 40.5 | 40.5 |
| 5.0M | E | 40.5 | |
| 5.0M | E | 40.5 | |

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 5.0M | E | 40.5 | |
| 5.0M | E | 40.5 | |
| 5.0M | E | 40.5 | |
| 5.0M | E | 40.5 | |
| 6.0M | E | 45.0 | |
| 7.0M | C | 46.5 | 46.5 |
| 7.0M | C | 46.5 | 46.5 |
| 7.5M | C | 48.0 | 48.0 |
| 10.0M | E | 49.0 | |
| 12.5M | E | 50.0 | |
| | | $R_1$ = | 565.0 |

$n_1$ = Campbell sample size = 20

$n_2$ = Edwards sample size = 30

$R_1$ = total of the ranks assigned to Campbell

$H_1$(null hypothesis): $U_C = U_E$

$$U = n_1 n_2 + \frac{n_1(n_2 + 1)}{2} - R_1$$

$$= (20)(30) + \frac{20(30 + 1)}{2} - 565.1$$

$$= 345$$

$$x(U) = \frac{n_1 n_2}{2} = \frac{(20)(30)}{2} = 300$$

$$S_U = \sqrt{\frac{n_1 n_2 (n_1 + n_2 + 1)}{n_1}}$$

$$= \sqrt{\frac{(20)(30)(20 + 30 + 1)}{20}}$$

$$= 39.1$$

$$Z = \frac{U - x(U)}{S_U} = \frac{345 - 300}{39.1} = 1.15$$

**Conclusion:** Since Z = 1.15, $H_1$ is rejected at the 75 percent level(1.15 S.D.). In other words, there is a 75 percent chance that Campbell and Edwards have different sample means.

As can be readily seen from Table 9.9, the data is very "unbalanced", both samples exhibiting long "tails". We can expect the means to be poor estimators. A rough test of their efficiency is the "coefficient of variation" (standard deviation/mean) where a high value might (not will) imply that the mean is not an efficient estimator. The efficiency of the mean in such case may be improved by a systematic removal of outliers (extreme values of the sample data) though at a price of losing data which might have information content (e.g. it may be dangerous to remove outlier data in financial distress prediction studies because maybe extreme values of some variables are signals of approaching distress). In the present case it simply is not known whether extreme values have information content. Living with the risk of that is the price that must be paid for improvement of the data distribution. It indicates that results will have to be evaluated with extra caution.

Using the full distribution (Table 9.1A) gives:

| | Campbell | Edwards |
|---|---|---|
| Number of observations | 20 | 30 |
| Mean | $2.79M | $2.42M |
| Standard deviation | $2.51M | $3.34M |
| Coefficient of variance(SD/Mean) | 0.90 | 1.38 |

with the standard deviations calculated on (n - 1) observations to correct for small sample size. The coefficient of variation of the Edwards sample is too high for comfort.

The Best Easy Systematic (BES) estimator adjustment (Wonnacott, p. 193) is applied to the sample data to eliminate the effects of outliers. In a sample with an even number of observations, the estimator is computed as the average of the four observations which fall: (1) at the (n/4)th point in the distribution, rounding upwards if necessary; (2) at the (n/2)th point; (3) at the [(n/2) + 1]th point; and (4) at the [(3n/4) + 1]th point, rounding down if necessary.

For a distribution of 20 observations we therefore use the 5th, 10th, 11th and 16th observations. For Campbell, we have:

$$BES = 1/4(0 + 2 + 3 + 5) = 2.5$$

For a distribution of 30 observations we use the 8th, 15th, 16th and 23rd observations. For the Edwards sample, we have:

$$BES = 1/4(0 + 0 + 0 + 5) = 1.25$$

Computation of the standard deviation around the BES estimator is not well-defined theoretically. The options appear to be either to use the four observations upon which the estimator is based (which is consistent, but ignores a great deal of potential information content); or to use all the observations within the range of observations spanned by the BES computation, namely, the 5th to 16th inclusive, or 12 observations for Campbell, and the 8th to 23rd inclusive, or 16 observations for Edwards (which makes better use of the available data but is less consistent with an estimator based on only 4

observations). Given our ignorance about the underlying populations of lending officer reactions, we will try both approaches and consider the results carefully.

Using the BES estimator gives:

| | Campbell | Edwards |
|---|---|---|
| Number of observations: | | |
| For average | 4 | 4 |
| In range | 12 | 16 |
| BES estimator | 2.5M | 1.25M |
| Standard deviation around BES: | | |
| On mean observations | 2.08 | 2.50 |
| On average observations | 1.50 | 2.24 |
| Coefficient of variance on BES: | | |
| On average observations | 0.83 | 1.67 |
| On range observations | 0.67 | 1.49 |

The standard deviations are calculated on (n - 1) observations. The coefficients of variance are improved for Campbell but not greatly so for Edwards. We can expect inconclusive results whichever estimator, mean or BES, is used.

Table 9.1B How large a line of credit would you charge?

Student-t(parametric) test

Applying the student-t test to the data in Table 9.1B, we get the following:

| Campbell | Edwards |
|---|---|
| $x_1 = 3.725$ | $x_2 = 5.577$ |
| $n_1 = 15$ | $n_2 = 13$ |
| $S_1 = 2.399$ | $S_2 = 4.331$ |

Degrees of freedom = $n_1 + n_2 - 2 = 15 + 13 - 2 = 26$

$$t = \frac{3.725 - 5.577}{\sqrt{\frac{(14)(2.399)^2 + (12)(4.331)^2}{15 + 13 - 2}} \times \sqrt{\frac{1}{15} + \frac{1}{13}}}$$

$$= -1.426$$

**Conclusion:** Since the t-score is greater than 1.315, the difference is significant at the 20 percent level.

## Mann-Whitney Test

Applying the Mann-Whitney(nonparametric) test to the data in Table 9.1B results in the following:

Table 9.10
Mann-Whitney Test Applied to Table 9.1B

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| .875M | C | 1 | 1 |
| 1.0M | C | 2.5 | 2.5 |
| 1.0M | E | 2.5 | |
| 1.5M | C | 4 | 4 |
| 2.0M | C | 5.5 | 5.5 |
| 2.0M | C | 5.5 | 5.5 |
| 3.0M | C | 8 | 8 |
| 3.0M | C | 8 | 8 |
| 3.0M | C | 8 | 8 |
| 3.5M | C | 10 | 10 |
| 4.0M | E | 11 | |
| 4.5M | C | 13 | 13 |
| 4.5M | E | 13 | |
| 4.5M | E | 13 | |

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 5.0M | C | 18.5 | 18.5 |
| 5.0M | C | 18.1 | 18.5 |
| 5.0M | E | 18.5 | |
| 5.0M | E | 18.5 | |
| 5.0M | E | 18.5 | |
| 5.0M | E | 18.5 | |
| 5.0M | E | 18.5 | |
| 5.0M | E | 18.5 | |
| 6.0M | E | 23 | |
| 7.0M | C | 24.5 | 24.5 |
| 7.0M | C | 24.5 | 24.5 |
| 7.5M | C | 26 | 26 |
| 10.0M | E | 27 | |
| 12.5M | E | 28 | |
| | | $R_1$ = | 177.5 |

$n_1$ = Campbell sample size = 15

$n_2$ = Edwards sample size = 13

$R_1$ = total of the ranks assigned to Campbell = 177.5

$H_1$(null hypothesis): $U_C = U_E$

$$U = n_1 n_2 + \frac{n_1 (n_2 + 1)}{2} - R_1$$

$$= 117.5$$

$$x(U) = \frac{n_1 n_2}{2} = \frac{(15)(13)}{2} = 97.5$$

$$S_U = \sqrt{\frac{n_1 n_2 ( n_1 + n_2 + 1 )}{n_1}} = \sqrt{\frac{(15)(13)(15 + 13 + 1)}{15}}$$

$$= 19.4$$

$$Z = \frac{U - x(U)}{S_U} = \frac{117.5 - 97.5}{19.4} = 1.03$$

**Conclusion:** Since Z = 1.03, $H_1$ is rejected at the 69.7 percent level(1.03 SD). In other words there is nearly a 7 out of 10 chance that the Campbell and Edwards means are not the same.

The BES test was not performed on this data because of its unreliability.

Table 9.3 What rate of interest would you charge?

| Campbell | Edwards |
|---|---|
| $x_1 = 12.57$ | $x_2 = 12.76$ |
| $n_1 = 15$ | $n_2 = 14$ |
| $S_1 = 0.85$ | $S_2 = 0.96$ |

Degrees of freedom $= n_1 + n_2 - 2 = 15 + 14 - 2 = 27$

$$t = \frac{12.57 - 12.76}{\sqrt{\frac{(14)(0.85)^2 + (13)(0.96)^2}{15 + 14 - 2}} \times \sqrt{\frac{1}{15} + \frac{1}{14}}}$$

$= 0.56$

**Conclusion:** Since the t-score is not greater than 1.314, the difference is not significant at the 20 percent level.

## Mann-Whitney(nonparametric) test

Applying the Mann-Whitney test to the data in Table 9.3, after eliminating "0" values, results in the following:

Table 9.11

Mann-Whitney Test Applied to Table 9.3

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 11.00 | C | 1.5 | 1.5 |
| 11.00 | E | 1.5 | |
| 11.25 | C | 3 | 3 |
| 11.58 | C | 4 | 4 |
| 12.00 | C | 7.5 | 7.5 |
| 12.00 | C | 7.5 | 7.5 |
| 12.00 | E | 7.5 | |
| 12.00 | E | 7.5 | |
| 12.00 | E | 7.5 | |
| 12.00 | E | 7.5 | |
| 12.22 | C | 11 | 11 |
| 12.50 | C | 12 | 12 |

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 12.63 | E | 13 | |
| 12.75 | E | 14 | |
| 12.78 | C | 15.5 | 15.5 |
| 12.78 | E | 15.5 | |
| 13.00 | C | 17 | 17 |
| 13.06 | C | 18 | 18 |
| 13.16 | C | 19.5 | 19.5 |
| 13.16 | E | 19.5 | |
| 13.33 | C | 23.5 | 23.5 |
| 13.33 | C | 23.5 | 23.5 |
| 13.33 | E | 23.5 | |
| 13.33 | E | 23.5 | |
| 13.33 | E | 23.5 | |
| 13.33 | E | 23.5 | |
| 13.53 | C | 27 | 27 |
| 13.75 | E | 28 | |
| 15.00 | E | 29 | |
| | | $R_1$ = | 190.5 |

$n_1$ = Campbell sample size = 15

$n_2$ = Edwards sample size = 14

$R_1$ = total of the ranks assigned to Campbell = 190.5

$H_1$(null hypothesis): $U_C = U_E$

$$U = n_1 n_2 + \frac{n_1 (n_2 + 1)}{2} - R_1$$

$$= 132$$

$$x(U) = \frac{n_1 n_2}{2} = \frac{(15)(14)}{2} = 105$$

$$S_U = \sqrt{\frac{n_1 n_2 ( n_1 + n_2 + 1 )}{n_1}} = \sqrt{\frac{(15)(14)(15 + 14 + 1)}{15}}$$

$$= 20.49$$

$$Z = \frac{U - x(U)}{S_U} = \frac{132 - 105}{20.49} = 1.32$$

**Conclusion**: Since Z = 1.32, $H_1$ is rejected at the 81.3 percent level (1.32 SD). In other words, there is a better than 80 percent chance that the Campbell and Edwards means are not the same.

Table 9.4 Would your bank grant a loan?

Assigning a value of "1" for a "yes" response and "0" for a "no" response, the means for Campbell and Edwards are 0.5 and 0.3, respectively.

| Campbell | Edwards |
|---|---|
| $x_1 = 0.5$ | $x_2 = 0.3$ |
| $n_1 = 20$ | $n_2 = 30$ |
| $S_1 = 0.51$ | $S_2 = 0.47$ |

Degrees of freedom = $n_1 + n_2 - 2 = 20 + 30 - 2 = 48$

**t-test**

$$t = \frac{0.5 - 0.3}{\sqrt{\frac{(19)(0.51)^2 + (29)(0.47)^2}{20 + 30 - 2}} \times \sqrt{\frac{1}{20} + \frac{1}{30}}}$$

$$= 1.429$$

**Conclusion**: Since the t-score is greater than 1.282, the difference is significant at the 20 percent level.

## Mann-Whitney(nonparametric) test

Applying the Mann-Whitney test to the data in Table 9.4 results in the following:

Table 9.12

Mann-Whitney Test Applied to Table 9.4

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 0 | C | 16 | 16 |
| 0 | C | 16 | 16 |
| 0 | C | 16 | 16 |
| 0 | C | 16 | 16 |
| 0 | C | 16 | 16 |
| 0 | C | 16 | 16 |
| 0 | C | 16 | 16 |
| 0 | C | 16 | 16 |
| 0 | C | 16 | 16 |
| 0 | C | 16 | 16 |
| 0 | C | 16 | 16 |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 0 | E | 16 | |
| 1 | C | 41 | 41 |
| 1 | C | 41 | 41 |
| 1 | C | 41 | 41 |
| 1 | C | 41 | 41 |
| 1 | C | 41 | 41 |
| 1 | C | 41 | 41 |
| 1 | C | 41 | 41 |
| 1 | C | 41 | 41 |
| 1 | C | 41 | 41 |
| 1 | C | 41 | 41 |
| 1 | E | 41 | |
| 1 | E | 41 | |
| 1 | E | 41 | |

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 1 | E | 41 | |
| 1 | E | 41 | |
| 1 | E | 41 | |
| 1 | E | 41 | |
| 1 | E | 41 | |
| 1 | E | 41 | |
| | | $R_1 =$ | 570 |

$n_1$ = Campbell sample size = 20

$n_2$ = Edwards sample size = 30

$R_1$ = total of the ranks assigned to Campbell = 570

$H_1$(null hypothesis): $U_C = U_E$

$$U = n_1 n_2 + \frac{n_1 (n_2 + 1)}{2} - R_1$$

$$= 340$$

$$x(U) = \frac{n_1 n_2}{2} = \frac{(20)(30)}{2} = 300$$

$$S_U = \sqrt{\frac{n_1 n_2 ( n_1 + n_2 + 1 )}{n_1}} = \sqrt{\frac{(20)(30)(20 + 30 + 1)}{20}}$$

$$= 39.12$$

$$Z = \frac{U - x(U)}{S_U} = \frac{340 - 300}{39.12} = 1.02$$

**Conclusion**: Since Z = 1.02, $H_1$ is rejected at the 69 percent level (1.02 SD). In other words, there is about a 70 percent chance that the Campbell and Edwards means are not equal.

**Table 9.5B** How risky is the loan?

| Campbell | Edwards |
|---|---|
| $x_1 = 2.95$ | $x_2 = 3.80$ |
| $n_1 = 20$ | $n_2 = 30$ |
| $S_1 = 1.05$ | $S_2 = 0.89$ |

Degrees of freedom = $n_1 + n_2 - 2 = 20 + 30 - 2 = 48$

**t-test**

$$t = \frac{2.95 - 3.80}{\sqrt{\frac{(19)(1.05)^2 + (29)(0.89)^2}{20 + 30 - 2}} \times \sqrt{\frac{1}{20} + \frac{1}{30}}}$$

$= 3.07$

**Conclusion**: Since the t-score is greater than 2.576, the difference is significant at the 1 percent level.

Mann-Whitney(nonparametric) test

Applying the Mann-Whitney test to the data in Table 9.5B results in the following:

Table 9.13

Mann-Whitney Test Applied to Table 9.5B

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 2 | C | 6 | 6 |
| 2 | C | 6 | 6 |
| 2 | C | 6 | 6 |
| 2 | C | 6 | 6 |
| 2 | C | 6 | 6 |
| 2 | C | 6 | 6 |
| 2 | C | 6 | 6 |
| 2 | C | 6 | 6 |
| 2 | C | 6 | 6 |
| 2 | E | 6 | |
| 2 | E | 6 | |
| 3 | C | 18.5 | 18.5 |
| 3 | C | 18.5 | 18.5 |
| 3 | C | 18.5 | 18.5 |
| 3 | C | 18.5 | 18.5 |
| 3 | C | 18.5 | 18.5 |
| 3 | E | 18.5 | |

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 3 | E | 18.5 | |
| 3 | E | 18.5 | |
| 3 | E | 18.5 | |
| 3 | E | 18.5 | |
| 3 | E | 18.5 | |
| 3 | E | 18.5 | |
| 3 | E | 18.5 | |
| 4 | C | 33.5 | 33.5 |
| 4 | C | 33.5 | 33.5 |
| 4 | C | 33.5 | 33.5 |
| 4 | C | 33.5 | 33.5 |
| 4 | E | 33.5 | |
| 4 | E | 33.5 | |
| 4 | E | 33.5 | |
| 4 | E | 33.5 | |
| 4 | E | 33.5 | |
| 4 | E | 33.5 | |
| 4 | E | 33.5 | |
| 4 | E | 33.5 | |
| 4 | E | 33.5 | |
| 4 | E | 33.5 | |
| 5 | C | 46 | 46 |
| 5 | C | 46 | 46 |
| 5 | E | 46 | |
| 5 | E | 46 | |

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| ~~6~~ | ~~E~~ | ~~46~~ | |
| 5 | E | 46 | |
| 5 | E | 46 | |
| 5 | E | 46 | |
| 5 | E | 46 | |
| | | $R_1$ = | 372.5 |

$n_1$ = Campbell sample size = 20

$n_2$ = Edwards sample size = 30

$R_1$ = total of the ranks assigned to Campbell = 372.5

$H_1$(null hypothesis): $U_C = U_E$

$$U = n_1 n_2 + \frac{n_1 (n_2 + 1)}{2} - R_1$$

$$= 537.5$$

$$x(U) = \frac{n_1 n_2}{2} = \frac{(20)(30)}{2} = 300$$

$$S_U = \sqrt{\frac{n_1 n_2 ( n_1 + n_2 + 1 )}{n_1}} = \sqrt{\frac{(20)(30)(20 + 30 + 1)}{20}}$$

$$= 39.12$$

$$Z = \frac{U - x(U)}{S_U} = \frac{537.5 - 300}{39.12} = 6.07$$

**Conclusion**: Since Z = 6.07, $H_1$ is rejected at the 99.99 percent level (6.07 SD). In other words, it is almost certain that the Campbell and Edwards means are not equal.

**Table 9.6** What rate of interest would you charge?

| Campbell | Edwards |
|---|---|
| $x_1 = 13.16$ | $x_2 = 13.47$ |
| $n_1 = 10$ | $n_2 = 9$ |
| $S_1 = 0.91$ | $S_2 = 1.23$ |

Degrees of freedom = $n_1 + n_2 - 2 = 10 + 9 - 2 = 17$

t-test

$$t = \frac{13.16 - 13.47}{\sqrt{\frac{(9)(0.91)^2 + (8)(1.23)^2}{10 + 9 - 2}} \times \sqrt{\frac{1}{10} + \frac{1}{9}}}$$

$= 0.63$

**Conclusion:** Since the t-score is not greater than 1.333, the difference is not significant at the 20 percent level.

## Mann-Whitney(nonparametric) test

Applying the Mann-Whitney test to the data in Table 9.6, after excluding "0" responses, results in the following:

Table 9.14

Mann-Whitney Test Applied to Table 9.6

| Array of Sample Values | Company | Rank | Rank Assigned to Values of Mix C |
|---|---|---|---|
| 11.75 | C | 1 | 1 |
| 12.00 | E | 2.5 | |
| 12.00 | E | 2.5 | |
| 12.11 | C | 4.5 | 4.5 |
| 12.11 | C | 4.5 | 4.5 |
| 12.50 | E | 6 | |
| 13.33 | C | 9 | 9 |
| 13.33 | C | 9 | 9 |
| 13.33 | C | 9 | 9 |
| 13.33 | E | 9 | |
| 13.33 | E | 9 | |
| 13.50 | C | 12 | 12 |
| 13.61 | C | 13 | 13 |
| 13.68 | E | 14 | |
| 13.89 | C | 15.5 | 15.5 |

Rank Assigned

| Array of Sample Values | Company | Rank | to Values of Mix C |
|---|---|---|---|
| 13.89 | E | 15.5 | |
| 14.69 | C | 17 | 17 |
| 15.29 | E | 18 | |
| 15.29 | E | 19 | |
| | | $R_1$ = | 94.5 |

$n_1$ = Campbell sample size = 10

$n_2$ = Edwards sample size = 9

$R_1$ = total of the ranks assigned to Campbell = 94.5

$H_1$(null hypothesis): $U_C = U_E$

$$U = n_1 n_2 + \frac{n_1 (n_2 + 1)}{2} - R_1$$

$$= 45.5$$

$$x(U) = \frac{n_1 n_2}{2} = \frac{(10)(9)}{2} = 45$$

$$S_U = \sqrt{\frac{n_1 n_2 ( n_1 + n_2 + 1 )}{n_1}} = \sqrt{\frac{(10)(9)(10 + 9 + 1)}{10}}$$

$$= 13.42$$

$$Z = \frac{U - x(U)}{S_U} = \frac{45.5 - 45}{13.42} = 0.04$$

**Conclusion:** Since $Z = 0.04$, $H_1$ is accepted.

# CHAPTER TEN

# RESULTS OF THE SECOND COMMERCIAL LENDING OFFICER SURVEY

## METHODOLOGY

The sample for this survey consisted of 1,002 commercial lending officers, obtained randomly from a population of 5,700. The list was purchased from a company that sells mailing lists. Five data packets were returned as undeliverable. Sixty-seven usable responses were received, for a response ratio of 6.7 percent. The material sent to commercial lending officers included[1] a cover letter, questionnaire, postpaid return envelope, modified annual reports for both Campbell Corporation and Edwards Corporation, an accounts receivable aging schedule for both companies and a listing of certain key financial ratios[2] for both companies.

One of the deficiencies of using the research methodology employed in this chapter is that some bankers may state that their decisions to lend or not to lend is not influenced by a company's accounting policy, whereas their actual lending decisions may be so influenced. This deficiency can be avoided by sending different data to two different groups of bankers, as was done in Chapter 9. However, this approach may also be criticized because the samples surveyed are different, a criticism that can be overcome by sending data for both companies to the same sample, as was done in the present chapter.

FINDINGS

TABLE 10.1

Bankers Favoring Campbell and Edwards

| | Number of Responses | Percentage |
|---|---|---|
| Bankers favoring Campbell | 41 | 61.2% |
| Bankers favoring Edwards | 7 | 10.4 |
| Campbell and Edwards treated equally--no reason given | 11 | 16.4 |
| Campbell and Edwards treated equally because accounting policy should not affect the lending decision | 8 | 12.0 |
| Total responses | 67 | |

Responses could be subdivided into four distinct categories. Of the sixty-seven usable responses received, forty-one (61.2%) favored Campbell Corporation over Edwards Corporation,[3] seven (10.4%) favored Edwards; eleven (16.4%) would treat the companies equally, but did not give any reason for similar treatment; and eight (12.0%) would treat the companies equally, because a company's software accounting policy would not influence their lending decision. These subdivisions are summarized in Table 10.1.

Question No. 1: Would your bank grant the loan?

TABLE 10.2

Question One Summary

| | Campbell | | Edwards | |
|---|---|---|---|---|
| | Number of Responses | Percentage | Number of Responses | Percentage |
| Yes | 41 | 63.1% | 20 | 29.9% |
| No | 24 | 36.9 | 47 | 70.1 |
| | 65 | 100.0% | 67 | 100.0% |

Using the student-t distribution, it was found that the sample means were significantly different at the 1% level (see appendix). A similar question was posed to a different group of bankers in Chapter 9 Question No. 5). Responses to that question were found to be significantly different at the 20% level.

The response to Question No. 1, summarized in Table 10.2, revealed that 41 bankers (63.1%) would grant the loan to Campbell, but only 20 bankers (29.9%) would do so for Edwards. Twenty-four of 65 bankers responding to this question (36.9%) would not grant the loan to Campbell, compared to seven out of ten (70.1%) who would deny a loan

request by Edwards. Responses to this question were found to be significantly different at the 1% level. See Appendix to Chapter 10. Also see Table 9.4, where a similar question was asked, and similar responses were received.

Question No. 2: What interest rate would you charge?

TABLE 10.3A

Question Two Summary

| | Number of Responses | Percentage |
|---|---|---|
| Lower rate for Campbell | 12 | 44.4% |
| Lower rate for Edwards | 1 | 3.7 |
| Same rate for both | 14 | 51.9 |
| | 27 | 100 % |

TABLE 10.3B

Question Two Summary

| Rate Charged Prime Plus | Campbell Number of Responses | Campbell Percentage | Edwards Number of Responses | Edwards Percentage |
|---|---|---|---|---|
| 0 % | 1 | 2.2% | - | - % |
| 0.5 | 14 | 30.4 | 6 | 20.7 |
| 1.0 | 16 | 34.8 | 7 | 24.1 |
| 1.5 | 4 | 8.7 | 5 | 17.2 |
| 2.0 | 9 | 19.6 | 4 | 13.8 |
| 2.5 | 1 | 2.2 | 3 | 10.3 |
| 3.0 | 1 | 2.2 | - | - |
| 3.5 | - | - | 1 | 3.4 |
| 4.0 | - | - | 3 | 10.3 |
| | 46 | | 29 | |

| | | |
|---|---|---|
| Weighted Average Rate | Prime plus 1.1% | Prime plus 1.7% |
| Median Rate | Prime plus 1.0% | Prime plus 1.5% |
| Mode | Prime plus 1.0% | Prime plus 1.0% |
| Standard Deviation | 0.665 | 1.096 |
| Coefficient of Variance | 0.60 | .64 |

Significant at the 1% level.

As is summarized in Tables 10.3A and 10.3B, bankers tend to charge a lower rate of interest for Campbell. This difference is significant at the 1% level. A similar question was asked in Chapter 9 (Question Nos. 3 and 8), where it was revealed that there was no significant difference in responses at the 20% level. When the question was asked to the second group of bankers, 12 of 27 bankers would give Campbell a lower rate than Edwards (44.4%), and only one banker (3.7%) would give Edwards a lwer rate. Rates varied from prime to prime plus four points. The average rate for Campbell was prime plus 1.1%; for Edwards it was prime plus 1.7%. The standard deviation and coefficient of variance were also higher for Edwards than for Campbell. The median rates were prime plus !.)% and prime plus 1.5% for Campbell and Edwards, respectively.

Question No. 3: How would you rate this loan for each corporation?

TABLE 10.4A

Question Three Summary

| | Campbell | | Edwards | |
|---|---|---|---|---|
| | Number of Responses | Percentage | Number of Responses | Percentage |
| Extremely risky | 3 | 4.6% | 17 | 27.4% |
| Risky | 17 | 26.2 | 26 | 41.9 |
| Marginal | 22 | 33.8 | 13 | 21.0 |
| Safe | 23 | 35.4 | 6 | 9.7 |
| Extremely safe | 0 | 0.0 | 0 | 0.0 |
| Totals | 65 | | 62 | |

TABLE 10.4B

Question Three Summary

| | | Campbell | | Edwards | |
|---|---|---|---|---|---|
| | Points | Number of Responses | Points | Number of Responses | Points |
| Extremely risky | 5 | 3 | 15 | 17 | 85 |
| Risky | 4 | 17 | 68 | 26 | 104 |
| Marginal | 3 | 22 | 66 | 13 | 39 |
| Safe | 2 | 23 | 46 | 6 | 12 |
| Extremely safe | 1 | 0 | 0 | 0 | 0 |
| | | 65 | 195 | 62 | 240 |
| Weighted Average | | 3.00 Marginal | | 3.87 Risky | |
| Median | | Marginal | | Risky | |
| Mode | | Safe | | Risky | |
| Standard Deviation | | 0.90 | | 0.93 | |
| Coefficient of Variance | | 0.30 | | 0.24 | |

Significant at the 1% level.

Responses, as summarized in Tables 10.4 A and 10.4B, indicate that a loan to Campbell was generally regarded as safer than a loan to Edwards Corporation. Only 3 bankers

(4.6%) rated a loan to Campbell as extremely risky, compared to 17 bankers (27.4%) who classified the Edwards loan as extremely risky. Seventeen bankers (26.2%) rated a loan to Campbell as being risky, compared to 26 bankers (41.9%) who gave a similar rating to Edwards. Twenty-two bankers (33.8%) rated Campbell as marginal, compared to 13 bankers (21.0%) for Edwards. Twenty-three bankers (35.4%) rated Campbell as safe, compared to 6 bankers (9.7%) who rated Edwards as safe. No bankers rated either Campbell or Edwards as safe. The average response indicated that a loan to Campbell would be considered marginal, whereas a loan to Edwards would be considered risky. These differences in response proved to be significant at the 1% level. When a similar question was asked in the first survey (Question No. 6, Table 9.5B), a 1% significance level was also found, in favor of Campbell.

Question No. 4: On a sale of 0% - 100%, what are the chances that the corporation will default on the loan if made to: Campbell? Edwards?

TABLE 10.5A

Question Four Summary

| | Number of Responses | Percentage |
|---|---|---|
| Lower percentage chance of default for Campbell | 38 | 60.3% |
| Lower percentage chance of default for Edwards | 6 | 9.5 |
| Same chance of default for Campbell and Edwards | 19 | 30.2 |
| | 63 | |

## TABLE 10.5B

### Question Four Summary

| Percentage Chance of Default | Campbell | | Edwards | |
|---|---|---|---|---|
| | Number of Responses | Percentage | Number of Responses | Percentage |
| 0 - 10% | 29 | 46.8% | 16 | 25.8% |
| 11 - 20 | 9 | 14.5 | 4 | 6.5 |
| 21 - 30 | 6 | 9.7 | 2 | 3.2 |
| 31 - 40 | 5 | 8.1 | 5 | 8.1 |
| 41 - 50 | 6 | 9.7 | 7 | 11.3 |
| 51 - 60 | 1 | 1.6 | 5 | 8.1 |
| 61 - 70 | 3 | 4.8 | 5 | 8.1 |
| 71 - 80 | 1 | 1.6 | 9 | 14.5 |
| 81 - 90 | 0 | - | 5 | 8.1 |
| 91 - 100 | 2 | 3.2 | 4 | 6.5 |
| | 62 | 100.0% | 62 | 100.0% |

TABLE 10.5C

Question Four Summary

| Approximate Percentage Chance of Default | Campbell | | Edwards | |
|---|---|---|---|---|
| | Number of Responses | Points | Number of Responses | Points |
| 5 | 29 | 145 | 16 | 80 |
| 15 | 9 | 135 | 4 | 60 |
| 25 | 6 | 150 | 2 | 50 |
| 35 | 5 | 175 | 5 | 175 |
| 45 | 6 | 270 | 7 | 315 |
| 55 | 1 | 55 | 5 | 275 |
| 65 | 3 | 195 | 5 | 325 |
| 75 | 1 | 75 | 9 | 675 |
| 85 | 0 | 0 | 5 | 425 |
| 95 | 2 | 190 | 4 | 380 |
| | 62 | 1,390 | 62 | 2,760 |
| Weighted Average Chance of Default | | 22.4% | | 44.5% |
| Median Chance of Default | | 15% | | 45% |
| Mode Chance of Default | | 5% | | 5% |
| Standard Deviation | | 22.2% | | 31.1% |
| Coefficient of Variance | | 0.99 | | 0.70 |

Significant at the 1% level.

As is summarized in Tables 105.A, B and C, bankers thought that a loan to Campbell had less chance of default than one to Edwards. This difference was significant at the 1% level. Thirty-eight of 63 bankers (60.3%) indicated that they thought a loan to Campbell would have a lower chance of default. Only 6 bankers (9.5%) thought that a loan to Edwards would be safer. Of the 19 bankers (30.2%) who thought the loans stood an equal chance of default, it is safe to assume that some of these bankers treated the companies equally because, in their view, accounting policy does not make a difference. The average chance of default for Campbell was 22.4%, about half that for Edwards (44.5%)

Question No. 5: If your bank granted a loan to both campbell and Edwards, would lending terms be (a) more restrictive for Campbell than for Edwards; (b) less restrictive for Campbell than for Edwards; or (c) equally restrictive?

TABLE 10.6

Question Five Summary

| | Number of Responses | Percentage |
|---|---|---|
| More restrictive for Campbell than for Edwards | 4 | 6.3% |
| Less restrictive for Campbell than for Edwards | 28 | 44.4 |
| Equally restrictive | 31 | 49.2 |
| | 63 | |

The responses revealed that 4 bankers (6.3%) would have more restrictive terms for Campbell than for Edwards, compared to 28 bankers (44.4%) who would have less restrictive terms for Campbell than for Edwards. Of the 31 bankers (49.2%) who would have equally restrictive terms, it is safe to assume that a number of these bankers chose equal treatment because, in their view, accounting policy does not matter.

Question No. 6: For purposes of this question only, assume that your bank had only $5 million available to lend. How much would be lent to: Campbell? Edwards?

TABLE 10.7

Question Six Summary

| | Number of Responses | Percentage |
|---|---|---|
| Bankers who would lend more to Campbell | 33 | 55.0% |
| Bankers who would lend more to Edwards | 6 | 10.0 |
| Bankers who would lend the same amount to both companies | 21 | 35.0 |
| | 60 | 100.0% |

The responses, summarized in Table 10.7, show that a majority of bankers (33 out of 60, or 55%) would lend more to Campbell. Only 6 bankers (10%) would lend more to Edwards. Twenty-one bankers (35%) would lend both companies equal amounts. From this response, it appears clear that Campbell stands a better chance to obtain debt capital than does Edwards.

Question No. 7: If, instead of a term loan, Campbell and Edwards each applied for an unsecured line of credit, what is the maximum line your bank would be willing to grant to Campbell? Edwards?

TABLE 10.8A

Question Seven Summary

| | Number of Responses | Percentage |
|---|---|---|
| Bankers who would grant a larger line to Campbell | 29 | 50.0% |
| Bankers who would grant a larger line to Edwards | 2 | 3.4 |
| Bankers who would grant the same line of credit to Campbell and Edwards | 27 | 46.6 |
| | 58 | 100.0% |

TABLE 10.8B

Question Seven Summary

| | Number of Responses | Percentage |
|---|---|---|
| Bankers granting a line of credit to both Campbell and Edwards | 21 | 36.2% |
| Bankers granting a line of credit to Campbell but not to Edwards | 19 | 32.8 |
| Bankers granting a line of credit to Edwards but not to Campbell | 0 | 0 |
| Bankers not granting a line of credit either to Campbell or Edwards | 18 | 31.0 |
| | 58 | |

As is summarized in Tables 10.8A and 10.8B, half of the bankers (29 out of 58, or 50%) would grant a larger line to Campbell; only 2 bankers (3.4%) would grant a larger line to Edwards. This response provides further evidence that a company that capitalizes software costs stands a far better chance to obtain debt capital than does an expensing company.

Question No. 8: "If your bank would treat applications by Campbell and Edwards differently, please indicate the reasons for the different treatments. Feel free to use more space if needed."

Table 10.9

Question Eight Summary

Banks Favoring Campbell

| Answers Addressed To Specific | | General | | |
|---|---|---|---|---|
| Risk | Earnings | Capital Structure | Quality of Receivables | General |
| 2 | 1 | 2 | | 3 |
| 4 | 5 | 7 | | 12 |
| 6 | 6 | 10 | | |
| 9 | 7 | 11 | | |
| 10 | 8 | 13 | | |
| 14 | 10 | 14 | | |
| | 11 | | | |
| | 14 | | | |
| | 15 | | | |
| | 16 | | | |
| | 17 | | | |

Banks Favoring Edwards

| Answers Addressed To Specific | | General | | |
|---|---|---|---|---|
| Risk | Earnings | Capital Structure | Quality of Receivables | Conservatism |
| | 3 | | | 1 |
| | | | | 2 |
| | | | | 3 |
| | | | | 4 |

A similar question was asked in Chapter 9 (see Table 9.2), and a similar response was received. Bankers who favored Campbell tended to do so because of Campbell's apparently superior earnings and capital structure as well as reduced risk. Bankers favoring Edwards did so because of a more conservative accounting policy. Bankers who had no preference apparently believe that accounting policy makes no difference. I wonder whether their responses would be different had they been included in the first sample (Chapter 9) instead. Individual responses are given below.

## Banks Favoring Campbell

Banks favoring Campbell Corporation cited the following reasons:

1. "Campbell obviously has much better control of operating costs and has taken steps to position itself for the future."

2. "Edwards ratios in debt to worth are disturbing and his situation is deteriorating by the years indicated. The Edwards situation should indicate additional caution."

3. "Both loans are marginal and should not be made."

4. "I would work toward securing both credits. Edwards would have to be secured in order to extend the credit; however, with negative cash flow it still would be a questionable credit."

5. "The Edwards statement would need additional explanation to credit committees because of the policy of expensing rather than capitalizing software development costs, causing higher variation of earnings and a loss in the most recent fiscal year."

6. "Campbell has had two profit years in excess of $2 million. Edwards performance is very marginal. Edwards would be incapable of repaying the loan from earnings."

7. "Edwards' loss and deficit net worth would preclude our helping them."

8. "If lent, both loans would have to be secured. We would need more information on the reasons for Edwards' loss."

9. "I would have to recommend declining the loan request for both companies based on the following reasons:

(1) The highly speculative use of funds.
(2) The research and development nature of operations.
(3) The five year unamortized term of loan.
(4) The unsecured status.
(5) Declining TNW trend and increasing leverage.
(6) Declining profit margins and loss posted by the Edwards Corporation.
(7) Concentration of net worth in fixed assets.

These companies ... could possibly be serviced by asset-based lending if they would agree to loans against a formula based on accounts receivable. Right now, Edwards Corporation does not have the cash flow to service the debt in a single payment sum and while Campbell Corporation does show sufficient cash flow, they are looking at a five year term before repayment and who's to say what cash

flow would be like at the end of five years ...? Another option for the bank, if we were to lend to Campbell Corporation, would be to lend against an escrow account established with our trust department, into which amortization expense is deposited, invested for additional income, and then used to repay our loan at the end of the five-year term."

10. "Because of the $6 million unsecured line, additional unsecured money would be hard to obtain. Edwards would only be granted on a secured basis. Treatment would be different because of the expenses, profits, capital and other ratios."

11. "Difference in net worth, debt to worth, all profitability ratios, ability to service, repayment requested."

12. "Trends look much better for Campbell."

13. "Campbell appears to have better liquidity than Edwards at present and would be more able to service long term debt."

14. "Profitability and debt position of Campbell make it the much more desirable loan. Edwards debt position makes them more susceptible to rate risk."

15. "Management of operating costs in an expanding market appears to be handled much better by Campbell than Edwards. Generated cash flow more evident by Campbell."

16. "These credits would scare the hell out of upper management. My bank would not consider the loan request on unsecured terms." (This respondent would grant a loan to Campbell but not Edwards.)

17. "Campbell is profitable and has positive cash flow to service debt. Edwards is unprofitable, cash flow does not service current charges, and expenses are rising faster than sales on a percentage basis."

## Banks Favoring Edwards

Banks favoring Edwards Corporation gave the following reasons:

1. "Different methods of accounting for computer software and educational courseware construction costs."

2. "Companies are identical except that Edwards is more conservative. I assume the IRS accepts both capitalization and direct expense."

3. "Due to the nature of software industry, expensing as incurred is more prudent."

4. "In today's ever-changing software business Edwards' policy of charging existing software costs to operations results in a more conservative financial presentation rather than capitalizing them as does Campbell."

## Banks Treating Campbell and Edwards Equally

Bankers treating both companies equally cited the following reasons:

1. "I do not make loans based only on financial statements and, therefore, cannot definitively answer the questions. I would weigh each statement the same in my decision but would trust information from Edwards more than that from Campbell."

2. "Edwards uses a more conservative approach to recording the software costs by expensing rather than capitalizing. This, however, is still not enough to grant Edwards the loan instead of Campbell. Both loans are risky due to the nature of the equipment and the uncertainty of its market-

ability. Neither company in our opinion deserves unsecured credit."

3. "No different. Different accounting for construction costs creates the impression that Campbell earns a profit when the construction cost puts it into a loss position. Rapid growth and expansion a mixed blessing. Would require marketable security to both borrowers."

4. "Generally the same. Balance sheets only reflect different handling of software. Campbell may find more credit available due to statement looks, thereby weakening current financial strength."

5. "Would treat both requests the same as the only difference between the two appears to be accounting treatment of software. Not enough information to decline or approve loan. To do properly your questionnaire takes more time than is proper to request. This could make any results invalid."

6. "Although Campbell Corporation's financial statements might appear more favorable at first glance, an experienced loan or credit officer will recognize the differences in the two companies' financial statements are due to the decision that (1)

accounting treatment for Campbell Corporation and another accounting treatment for Edwards Corporation."

7. "No difference--same basic economic facts--merely different accounting presentations."

Question 9: The bank's total assets are:

TABLE 10.10A

Question Nine Summary

| | Number of Responses | Percentage |
|---|---|---|
| More than $5 billion | 13 | 19.7% |
| $5 billion or less | 53 | 80.3 |
| | 66 | 100.0% |

TABLE 10.10B

Bank Preference By Size

| | Banks having assets of | |
|---|---|---|
| | More than $5 billion | $5 billion or less |
| Bankers favoring Campbell | 9 | 32 |
| Bankers favoring Edwards | 1 | 6 |
| Bankers treating Campbell and Edwards equally--no reason given | 2 | 9 |
| Bankers treating Campbell and Edwards equally because accounting policy should not affect the lending decision | 1 | 6 |
| | 13 | 53 |

Most bankers were employed by banks having assets of less than $5 billion.

Question No. 10: The person completing this questionnaire has had years experience in a loan department.

TABLE 10.11

Question Ten Summary

| Years Experience | Number of Responses | Percentage |
|---|---|---|
| 0 to 3 | 11 | 17.2% |
| 3+ to 6 | 19 | 29.7 |
| 6+ to 10 | 17 | 26.6 |
| 10+ to 15 | 8 | 12.5 |
| 15+ to 25 | 7 | 10.9 |
| More than 25 | 2 | 3.1 |
| | 64 | 100.0% |

Question No. 11: The person completing this questionnaire is a (n):

TABLE 10.12

Question Eleven Summary

| | Number of Responses | Percentage |
|---|---|---|
| Senior or executive vice president or other senior officer | 5 | 7.5% |
| Vice president, secretary or treasurer | 20 | 29.9 |
| Assistant vice president or other assistant officer | 34 | 50.7 |
| Not an officer | 8 | 11.9 |
| | 67 | |

Question No. 12: The office where this questionnaire is being completed is located in the:

TABLE 10.13

Question Twelve Summary

| | Number of Responses | Percentage |
|---|---|---|
| Northeast | 20 | 31.7% |
| South | 13 | 20.6 |
| North Central | 23 | 36.5 |
| West | 7 | 11.1 |
| | 63 | |

Summary

Data gathered in this survey tends to confirm the preliminary information obtained in the course of the interviews, vendor questionnaire and first banker questionnaire responses. Software vending companies that capitalize software costs tend to find it easier to obtain bank loans than do companies that expense software costs.

Table 10.14

Comparison of Chapter 9 and Chapter 10 Responses

| Question Number | Question | Significance |
|---|---|---|
| 9.1 | How large a line of credit would your bank be willing to grant to this company? (Table 9.1A-included zero loans) | Not significant at 20% level. |
| 9.1 | How large a line of credit would your bank be willing to grant to this company? (Table 9.1B-Excludes zero loans) | Significant at 20% level, in favor of Edwards. |
| 9.3 | What rate of interest would you charge (for an unsecured line of credit? (Table 9.3) | Not significant at 20% level. |
| 9.5 | If, instead of a line of credit, the company had applied for a $2 million, 5 year loan, would your bank grant the loan? (Table 9.4) | Significant at 20% level, in favor of Campbell. |
| 9.6 | How risky is this loan? (Table 9.5B) | Significant at 1% level, in favor of Campbell. |
| 9.8 | What rate of interest would you charge for the term loan? (Table 9.6) | Not significant at the 20% level. |
| 10.1 | Would your bank grant the loan? (Table 10.2) | Significant at the 1% level, in favor of Campbell. |

Table 10.14 (Continued)

Comparison of Chapter 9 and Chapter 10 Responses

| Question Number | Question | Significance |
|---|---|---|
| 10.2 | What interest rate would you charge (Table 10.3B) | Significant at 1% level, in favor of Campbell. |
| 10.3 | How risky is this loan? (Table 10.4B) | Significant at 1% level, in favor of Campbell. |
| 10.4 | What are the chances that the corporation will default on the loan? (Table 10.5C) | Significant at 1% level, in favor of Campbell. |

Table 10.14 summarizes some of the responses received from both bank lending officer surveys. In the first survey (Chapter 9), the line of credit granted to Edwards seems to be significantly larger than that granted to Campbell, if all "no loan" situations are excluded (Table 9.1B). However, this result might be a distortion, because many companies would not grant a loan to Edwards.

The interest rate charged to both companies appeared to be about the same in the first survey (Tables 9.3 and 9.6), but was significantly less for Campbell than for Edwards in the second survey (Table 10.2). Both surveys revealed that

bankers regarded a loan to Campbell as a significantly safer loan than one to Edwards (Tables 9.5B and 10.4B).

The next chapter examines the effect of software accounting policy on stock price.

# CHAPTER 10

# APPENDIX

In Chapter 9, the student-t(parametric) and Mann-Whitney (nonparametric) tests were used to measure differences between two samples. The data analyzed in Chapter 10 were gathered from a single sample, so the statistical tests used in Chapter 9 are not appropriate for Chapter 10. The two statistical tests chosen for this chapter are the t-test(parametric - and different than the student-t test used in the previous chapter) and the sign (nonparametric) test, which are suitable for analyzing single, small samples. (Wonnacott, pp. 210 and 472; Clark and Schkade, pp. 396 and 472). Because both a parametric and nonparametric test are employed, no assumptions had to be made as to whether or not the distribution was normal. I decided against using the Best Easy Systematic(BES) estimator due to its unreliability and statistical impurity. Again, the principal statistic employed was parametric (t-test). The (nonparametric) sign test was employed just to be on the safe side.

Table 10.1 Bankers favoring Campbell and Edwards

The data in Table 10.1 were arrived at by reviewing each questionnaire response to determine whether the individual respondents favored one company over the other. It was found that the bankers favored Campbell over Edwards by about 6 to 1 (61.2% compared to 10.4%).

t-test (parametric)

Where: X = 0.754 (sample mean)

S = 0.339

n = 67

U = 0.5 (expected mean, assuming indifference)

d.f. (degrees of freedom) = n - 1 = 66

Assigned values: 1 for bankers favoring Campbell

0 for bankers favoring Edwards

0.5 for bankers expressing no preference

$H_1$(null hypothesis): X = U

$$t = \frac{(X - U)\sqrt{n - 1}}{S}$$

$$= \frac{(0.754 - 0.5)\sqrt{66}}{0.339} = 6.09$$

Sign Test (nonparametric)

The sign test is so called because it uses plus and minus signs for data rather than numbers. Differences are considered, but not magnitudes of differences. Bankers who preferred Campbell were assigned a plus (+) and bankers who preferred Edwards were assigned a minus (-). Bankers having no preference were ignored, as is required for the sign test.

$H_1$ (null hypothesis): $P_C = P_E$

Where: n = 48 (number of observations)

r = 41 (number of bankers preferring Campbell)

p = 0.5 (expected probability)

$$S = \sqrt{np(1-p)} = \sqrt{(48)(0.5)(1-0.5)} = 3.464$$

$$E(r) = np = (48)(0.5) = 24$$

$$Z = \frac{r - 0.5 - E(r)}{S} = \frac{41 - 0.5 - 24}{3.464} = 4.76$$

**Conclusion:** There is a 99.99 percent chance that the hypothesis should be rejected.

Table 10.2 Would your bank grant the loan?

Table 10.2 summarizes the responses to the question "Would your bank grant a loan to Campbell or Edwards?" Not all bankers answered for both Campbell and Edwards. By reviewing the individual responses, the following could be determined:

| | |
|---|---|
| A. Number of bankers granting a loan to both Campbell and Edwards | 17 |
| B. Number of bankers granting a loan to Campbell but not to Edwards | 24 |
| C. Number of bankers granting a loan to Edwards but not to Campbell | 2 |
| D. Number of bankers granting a loan to neither Campbell nor Edwards | 23 |
| | 66 |

Because not all bankers responded to both parts of the question (65 responded to Campbell, compared to 67 for Edwards), the sample sizes are different, and the t-test used above is not appropriate. However, the t-test for two samples can be used, since we are dealing with a single population.

$$t = \frac{x_1 - x_2}{\sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}} \times \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where $x_1$ and $x_2$ are the means, $n_1$ and $n_2$ are the sample sizes and $S_1$ and $S_2$ are the standard deviations.

Assigning a value of "1" for a "yes" response and "0" for a "no" response, the means for Campbell and Edwards are 0.63 and 0.30, respectively.

| Campbell | Edwards |
|---|---|
| $x_1 = 0.63$ | $x_2 = 0.30$ |
| $n_1 = 65$ | $n_2 = 67$ |
| $S_1 = 0.48$ | $S_2 = 0.46$ |

Degrees of freedom = 65 + 67 - 2 = 130

$H_1: x_1 = x_2$

$$t = \frac{0.63 - 0.30}{\sqrt{\frac{(64)(0.48)^2 + (66)(0.46)^2}{65 + 67 - 2}} \times \sqrt{\frac{1}{65} + \frac{1}{67}}}$$

$$= 4.125$$

**Conclusion:** Reject $H_1$. The t-score is greater than 2.576, so the difference is significant at the 1 percent level.

Sign Test

The sign test can also be used to test for significance. Given that a plus (+) is assigned when a banker would grant a loan to Campbell but not to Edwards (Category B responses), and a minus(-) is assigned when a banker would grant a loan to Edwards but not to Campbell (Category C) (Categories A and D are ignored for the sign test), the following result is obtained:

$H_1$ (null hypothesis): $P_C = P_E$

Where: $n = 26$ (number of observations)

$r = 24$ (number of bankers preferring Campbell)

$p = 0.5$ (expected probability)

$$S = \sqrt{np(1-p)} = \sqrt{(26)(0.5)(1-0.5)} = 2.55$$

$$E(r) = np = (26)(0.5) = 13$$

$$Z = \frac{r - 0.5 - E(r)}{S} = \frac{24 - 0.5 - 13}{2.55} = 4.12$$

**Conclusion:** Reject $H_1$. There is a 99.99 percent chance that the hypothesis should be rejected.

Table 10.3A What interest rate would be charged?

If values of 30, 10 and 20 were assigned for bankers favoring Campbell, Edwards or neither, respectively, one would expect the mean to be 20 if no overall preference were expressed. However, such was not the case. Bankers preferred Campbell over Edwards by 12 to 1 (44.4% to 3.7%).

t-test (parametric)

Where: X = 24(sample mean)

S = 5.6

n = 27

U = 20 (expected mean, assuming indifference)

d.f. (degrees of freedom) = n - 1 = 26

$H_1$(null hypothesis): X = U

$$t = \frac{(X - U)\sqrt{n - 1}}{S}$$

$$= \frac{(24 - 20)\sqrt{26}}{5.6} = 3.64$$

**Conclusion:** Reject $H_1$. There is a 99 percent chance that the hypothesis should be rejected.

Sign Test (nonparametric)

Given that a plus(+) is assigned when a banker grants a lower interest rate to Campbell than to Edwards, and a minus(-) is assigned when Edwards gets a lower rate (the 14 "same rate" cases are ignored

in the sign test), the following result is obtained:

$H_1$ (null hypothesis): $P_C = P_E$

Where: n = 13 (number of observations)

r = 12 (number of bankers preferring Campbell)

p = 0.5 (expected probability)

$$S = \sqrt{np(1-p)} = \sqrt{(13)(0.5)(1-0.5)} = 1.8$$

$$E(r) = np = (13)(0.5) = 6.5$$

$$Z = \frac{r - 0.5 - E(r)}{S} = \frac{12 - 0.5 - 6.5}{1.8} = 2.78$$

**Conclusion:** With a Z-score of 2.78, there is a 99.7 percent chance that the hypothesis should be rejected.

Table 10.3B What rate of interest would you charge?

t-test

Not all bankers answered this question for both Campbell and Edwards. The sample sizes are different, so the t-test for two samples is used.

| Campbell | Edwards |
|---|---|
| $x_1 = 1.1$ | $x_2 = 1.7$ |
| $n_1 = 46$ | $n_2 = 29$ |
| $S_1 = 0.665$ | $S_2 = 1.096$ |

Degrees of freedom = 46 + 29 - 2 = 73

$H_1: x_1 = x_2$

$$t = \frac{1.1 - 1.7}{\sqrt{\frac{(45)(0.665)^2 + (28)(1.096)^2}{46 + 29 - 2}} \times \sqrt{\frac{1}{46} + \frac{1}{29}}}$$

$$= 3.16$$

**Conclusion**: Reject $H_1$. The t-score is greater than 2.576, so the difference is significant at the 1 percent level.

## F Distribution

The F distribution can be used to test the significance of differences in two sample variances (Clark and Schkade, p. 465).

Given that:

| Campbell | Edwards |
|---|---|
| $n_1 = 46$ | $n_2 = 29$ |
| $S_1 = 0.665$ | $S_2 = 1.096$ |
| d.f. = 45 | d.f. = 28 |

$$F = \frac{n_1 S_1^2/(n_1 - 1)}{n_2 S_2^2/(n_2 - 1)} = \frac{(46)(0.665)^2/(46 - 1)}{(29)(1.096)^2/(29 - 1)}$$

$$= \frac{0.452}{1.244}$$

Where the result is less than one, the reciprocal is used, so:

$$F = \frac{1.244}{0.452} = 2.752$$

**Conclusion:** The difference is significant at the 1 percent level.

Table 10.4B How risky is this loan?

**t-test**

The sample sizes are different, so the t-test for two samples is used.

| Campbell | Edwards |
|---|---|
| $x_1 = 3.00$ | $x_2 = 3.87$ |
| $n_1 = 65$ | $n_2 = 62$ |
| $S_1 = 0.90$ | $S_2 = 0.93$ |

Degrees of freedom = 65 + 62 - 2 = 125

$H_1: x_1 = x_2$

$$t = \frac{3.00 - 3.87}{\sqrt{\frac{(64)(0.90)^2 + (61)(0.93)^2}{65 + 62 - 2}} \times \sqrt{\frac{1}{65} + \frac{1}{62}}}$$

= 5.44

**Conclusion**: Reject $H_1$. The t-score is greater than 2.576, so the difference is significant at the 1 percent level. A similar question was posed to a different group of bankers in Chapter 9 and a similar finding was made (See Table 9.4B).

## Wilcoxon Matched-Pairs Signed-Ranks Test

The Wilcoxon Matched-Pairs Signed-Ranks Test is nonparametric and is more powerful than the sign test because it gives more weight to a large difference than to a small one. It considers both the sign of the difference within pairs of observations and the magnitude of that difference. (Clark and Schkade, p. 443)

Table 10.4B assigns weights to the various categories. By going back to the original data, comparing individual banker responses and listing only those responses where the respondent expressed a preference, we have:

Table 10.15
Wilcoxon Matched-Pairs Signed-Ranks Test Applied To
Table 10.4B Data

| Respondent Number | Point Difference | Rank | Rank With Less Frequent Sign |
|---|---|---|---|
| 1 | 2 | -29.0 | |
| 2 | 2 | -29.0 | |
| 3 | 2 | -29.0 | |
| 4 | 3 | -38.0 | |
| 5 | 1 | -11.5 | |
| 6 | Incomplete Response | | |
| 7 | 1 | -11.5 | |
| 8 | No Difference | | |
| 9 | 2 | -29.0 | |
| 10 | 1 | -11.5 | |
| 11 | 2 | -29.0 | |
| 12 | 2 | -29.0 | |
| 13 | 1 | -11.5 | |
| 14 | 1 | -11.5 | |
| 15 | 3 | -38.0 | |
| 16 | 2 | -29.0 | |
| 17 | 2 | -29.0 | |
| 18 | 3 | -38.0 | |
| 19 | 3 | -38.0 | |
| 20 | 1 | -11.5 | |

| | | | |
|---|---|---|---|
| 21 | 1 | -11.5 | |
| 22 | 2 | -29.0 | |
| 23 | 2 | -29.0 | |
| 24 | Incomplete Response | | |
| 25 | 1 | -11.5 | |
| 26 | 1 | +11.5 | 11.5 |
| 27 | 3 | -38.0 | |
| 28 | 2 | -29.0 | |
| 29 | 2 | +29.0 | 29.0 |
| 30 | No Difference | | |
| 31 | 1 | +11.5 | 11.5 |
| 32 | 1 | +11.5 | 11.5 |
| 33 | 1 | +11.5 | 11.5 |
| 34 | No Difference | | |
| 35 | No Difference | | |
| 36 | No Difference | | |
| 37 | No Difference | | |
| 38 | Incomplete Response | | |
| 39 | No Difference | | |
| 40 | No Difference | | |
| 41 | No Difference | | |
| 42 | No Difference | | |
| 43 | Incomplete Response | | |
| 44 | No Difference | | |
| 45 | Incomplete Response | | |

| Respondent Number | Point Difference | Rank | Rank With Less Frequent Sign |
|---|---|---|---|
| 46 | No Difference | | |
| 47 | 1 | -11.5 | |
| 48 | No Difference | | |
| 49 | Incomplete Response | | |
| 50 | 1 | -11.5 | |

| | | | | |
|---|---|---|---|---|
| 51 | No Difference | | | |
| 52 | No Difference | | | |
| 53 | No Difference | | | |
| 54 | 1 | -11.5 | | |
| 55 | 1 | -11.5 | | |
| 56 | No Difference | | | |
| 57 | No Difference | | | |
| 58 | 1 | +11.5 | | 11.5 |
| 59 | No Difference | | | |
| 60 | 1 | -11.5 | | |
| 61 | 1 | -11.5 | | |
| 62 | 2 | -29.0 | | |
| 63 | 1 | -11.5 | | |
| 64 | No Difference | | | |
| 65 | No Difference | | | |
| 66 | 1 | -11.5 | | |
| 67 | 1 | -11.5 | | |
| | | | T = | 86.5 |

The point difference was determined by subtracting the rank assigned to Edwards from that assigned to Campbell, in absolute terms. For example, the first banker ranked Campbell marginal (3 points) and Edwards extremely risky (5 points), for a difference of 2, in absolute terms. The "rank" column has a negative sign because the result is negative when the Edwards score (5) is subtracted from the Campbell score (3). There were 22 responses having a 1 point

difference, 13 responses with a 2 point difference, and 5 responses with a 3 point difference. Respondents having no preference were eliminated (as is required for this test), as were incomplete responses.

$$n = 40 \qquad T = 86.5$$

$$U_T = \frac{n(n+1)}{4} = \frac{(40)(41)}{4} = 410$$

$$S_T = \sqrt{\frac{n(n+1)(2n+1)}{24}} = \sqrt{\frac{(40)(41)(81)}{24}} = 74.4$$

$$Z = \frac{T - U_T}{S_T} = \frac{86.5 - 410}{74.4} = -4.35$$

**Conclusion:** The difference is significant at the 1 percent level.

Table 10.5A Chance of default.

If values of 30, 10 and 20 were assigned for bankers favoring Campbell, Edwards or neither, respectively, one would expect the mean to be 20 if no overall preference were expressed. However, such was not the case. Bankers preferred Campbell over Edwards by 38 to 6, or better than 6 to 1.

t-test (parametric)

Where: X = 25(sample mean)

S = 6.64

n = 63

U = 20 (expected mean, assuming indifference)

d.f. (degrees of freedom) = n - 1 = 62

$H_1$(null hypothesis): X = U

$$t = \frac{(X - U)\sqrt{n - 1}}{S}$$

$$= \frac{(25 - 20)\sqrt{62}}{6.64} = 5.93$$

**Conclusion:** Reject $H_1$. There is a 99 percent chance that the hypothesis should be rejected.

Sign Test (nonparametric)

Given that a plus(+) is assigned when a banker prefers Campbell and a minus(-) is assigned when Edwards is preferred (the 19 "same

chance" cases are ignored in the sign test), the following result is obtained:

$H_1$ (null hypothesis): $P_C = P_E$

Where: $n = 44$ (number of observations)

$r = 38$ (number of bankers preferring Campbell)

$p = 0.5$ (expected probability)

$$S = \sqrt{np(1-p)} = \sqrt{(44)(0.5)(1-0.5)} = 3.32$$

$$E(r) = np = (44)(0.5) = 22$$

$$Z = \frac{r - p - E(r)}{S} = \frac{38 - 0.5 - 22}{3.32} = 4.67$$

**Conclusion:** Reject $H_1$. With a Z-score of 4.67, there is a 99

percent chance that the hypothesis should be rejected.

Table 10.6 Lending restrictions.

If values of 30, 10 and 20 were assigned for bankers favoring Campbell, Edwards or neither, respectively, one would expect the mean to be 20 if no overall preference were expressed. However, such was not the case. Bankers preferred Campbell over Edwards by 28 to 4, or 7 to 1.

t-test (parametric)

Where: X = 24(sample mean)

S = 6.03

n = 63

U = 20 (expected mean, assuming indifference)

d.f. (degrees of freedom) = n - 1 = 62

$H_1$(null hypothesis): X = U

$$t = \frac{(X - U)\sqrt{n - 1}}{S}$$

$$= \frac{(24 - 20)\sqrt{62}}{6.03} = 5.22$$

**Conclusion**: Reject $H_1$. There is a 99 percent chance that the hypothesis should be rejected.

Sign Test (nonparametric)

Given that a plus(+) is assigned when a banker prefers Campbell and a minus(-) is assigned when Edwards is preferred (the 31 "equally restrictive" cases are ignored in the sign test), the following result is obtained:

$H_1$ (null hypothesis): $P_C = P_E$

Where: n = 32 (number of observations)

r = 28 (number of bankers preferring Campbell)

p = 0.5 (expected probability)

$$S = \sqrt{np(1 - p)} = \sqrt{(32)(0.5)(1 - 0.5)} = 2.83$$

$$E(r) = np = (32)(0.5) = 16$$

$$Z = \frac{r - p - E(r)}{S} = \frac{28 - 0.5 - 16}{2.83} = 4.06$$

**Conclusion:** Reject $H_1$. With a Z-score of 4.06, there is a 99 percent chance that the hypothesis should be rejected.

Table 10.7 Amount lent.

If values of 30, 10 and 20 were assigned for bankers favoring Campbell, Edwards or neither, respectively, one would expect the mean to be 20 if no overall preference were expressed. However, such was not the case. Bankers preferred Campbell over Edwards by 33 to 6, or 5.5 to 1.

t-test (parametric)

Where: X = 25(sample mean)

$S = 6.7$

$n = 60$

$U = 20$ (expected mean, assuming indifference)

d.f. (degrees of freedom) $= n - 1 = 59$

$H_1$(null hypothesis): $X = U$

$$t = \frac{(X - U)\sqrt{n - 1}}{S}$$

$$= \frac{(25 - 20)\sqrt{59}}{6.7} = 5.73$$

**Conclusion:** Reject $H_1$. There is a 99 percent chance that the hypothesis should be rejected.

## Sign Test (nonparametric)

Given that a plus(+) is assigned when a banker prefers Campbell and a minus(-) is assigned when Edwards is preferred (the 21 "same amount" cases are ignored in the sign test), the following result is obtained:

$H_1$ (null hypothesis): $P_C = P_E$

Where: $n = 39$ (number of observations)

$r = 33$ (number of bankers preferring Campbell)

$p = 0.5$ (expected probability)

$$S = \sqrt{np(1-p)} = \sqrt{(39)(0.5)(1-0.5)} = 3.12$$

$$E(r) = np = (39)(0.5) = 19.5$$

$$Z = \frac{r - p - E(r)}{S} = \frac{33 - 0.5 - 19.5}{3.12} = 4.17$$

**Conclusion:** Reject $H_1$. With a Z-score of 4.17, there is a 99 percent chance that the hypothesis should be rejected.

Table 10.8A Size of line of credit.

If values of 30, 10 and 20 were assigned for bankers favoring Campbell, Edwards or neither, respectively, one would expect the mean to be 20 if no overall preference were expressed. However, such was not the case. Bankers preferred Campbell over Edwards by 29 to 2, or 14.5 to 1.

t-test (parametric)

Where: X = 25(sample mean)

S = 5.65

n = 58

U = 20 (expected mean, assuming indifference)

d.f. (degrees of freedom) = n - 1 = 57

$H_1$(null hypothesis): X = U

$$t = \frac{(X - U)\sqrt{n - 1}}{S}$$

$$= \frac{(25 - 20)\sqrt{57}}{5.65} = 6.68$$

**Conclusion**: Reject $H_1$. There is a 99 percent chance that the hypothesis should be rejected.

Sign Test (nonparametric)

Given that a plus(+) is assigned when a banker prefers Campbell and a minus(-) is assigned when Edwards is preferred (the 27 "same line" cases are ignored in the sign test), the following result is obtained:

$H_1$ (null hypothesis): $P_C = P_E$

Where: n = 31 (number of observations)
r = 29 (number of bankers preferring Campbell)
p = 0.5 (expected probability)

$$S = \sqrt{np(1 - p)} = \sqrt{(31)(0.5)(1 - 0.5)} = 2.78$$

$$E(r) = np = (31)(0.5) = 15.5$$

$$Z = \frac{r - p - E(r)}{S} = \frac{29 - 0.5 - 15.5}{2.78} = 4.68$$

**Conclusion:** Reject $H_1$. With a Z-score of 4.68, there is a 99 percent chance that the hypothesis should be rejected.

# CHAPTER ELEVEN

# RESULTS OF THE FINANCIAL ANALYSTS SURVEY

In order to determine whether software accounting policy has an effect on stock price, a questionnaire was sent to 803 financial analysts. Two hundred ninety-seven names were purchased from the Financial Analysts Federation and consisted of financial analysts that specialize in the computer or software industry. The remaining 506 analysts were chosen at random from a listing of financial analysts that are members of the New York City chapter of the Financial Analysts Federation. Forty-eight data packets were returned as undeliverable. Fifteen usable responses were received, for a response rate of about 2 percent. Each analyst received the financial data for both Campbell Corporation and Edwards Corporation, a listing of ratios, a questionnaire, cover letter and postpaid return envelope.

Of the fifteen usable responses received, five favored Campbell, four favored Edwards, one had mixed feelings, and five analysts treated Campbell and Edwards equally. The background information needed to complete the questionnaire was as follows:[1]

> "The two fictitious companies to be compared in this study are Campbell Corporation and Edwards Corporation. The setting of the study is as follows: Suppose you are to consult an individual investor, named George Madison,

with respect to his personal investment portfolio. Mr. Madison is a vice president of a large manufacturing corporation and is a resident of your city. He is acquainted with Andrew Monroe, the president of Campbell Corporation and Lyndon Adams, the president of Edwards Corporation. Mr. Madison confronts you with an annual report for each of these companies and asks you to compare them as investment alternatives. Mr. Madison is 32 years old, single, and in excellent health. His salary provides more than enough income for his present needs. He has $50,000 in cash which he desires to invest in common stocks, preferably stocks which appear likely to have substantial price growth over the next five to ten years."

Question No. 1: If Mr. Madison wants to allocate $30,000 between these two investment alternatives, what proportions would you recommend for each common stock offering? (The percentage allocable to Campbell and Edwards is supposed to total 100%). (See Table 11.1)

TABLE 11.1

Question One

Percentage of $30,000 allocated to Campbell and Edwards

| Respondent | Campbell | Edwards |
|---|---|---|
| 1 | 0% | 0% |
| 2 | 80 | 20 |
| 3 | 70 | 30 |
| 4 | - | - |
| 5 | 75 | 25 |
| 6 | 0 | 100 |
| 7 | 25 | 75 |
| 8 | 25 | 75 |
| 9 | 0 | 100 |
| 10 | 0 | 100 |
| 11 | - | - |
| 12 | 50 | 50 |
| 13 | 50 | 50 |
| 14 | 50 | 50 |
| 15 | 50 | 50 |

| | Number of Responses | Percentage |
|---|---|---|
| More to Campbell | 3 | 23.1% |
| More to Edwards | 5 | 38.5 |
| Same amount to each | 5 | 38.5 |
| | 13 | |

Three of 13 respondents (23.1%) would allocate more money to Campbell, five (38.5%) would allocate more to Edwards and five (38.5%) would allocate the same percentage to each company.

Question No. 2: "Given only the information provided to you, what value or price per share would you place on the common stock of these two companies at their annual report dates?"[2] (See Table 11.2)

TABLE 11.2

Question Two

| Respondent | Price Per Share | |
|---|---|---|
| | Campbell | Edwards |
| 1 | $ 7.00 | $ 3.00 |
| 2 | 5.50 | 1.50 |
| 3 | 20.00 | 10.00 |
| 4 | 10.00 | 10.00 |
| 5 | 8.00 | 3.00 |
| 6 | 5.00 | 7.50 |
| 7 | 10.00 | 12.00 |
| 8 | 1.00 | 2.50 |
| 9 | 10.00 | 6.00 |
| 10 | 31.00 | 19.00 |
| 11 | - | - |
| 12 | 5.00 | 5.00 |
| 13 | 10.00 | 10.00 |
| 14 | 4.00 | 4.00 |
| 15 | - | - |
| Mean | $ 9.73 | $ 7.19 |
| Median | 8.00 | 6.00 |
| Mode | 10.00 | 10.00 |
| Range | $1.00-$31.00=$30.00 | $1.50-$19.00=$17.50 |

| | Number of Responses | Percentage |
|---|---|---|
| Higher price for Campbell | 6 | 46.2% |
| Higher price for Edwards | 3 | 23.1 |
| Same price for both | 4 | 30.8 |
| | 13 | |

Of the 13 analysts responding to this question, six (46.2%) would assign a higher price to Campbell stock than to that of Edwards, three (23.1%) would assign a higher price for Edwards stock, and four (30.8%) would assign the same price to each stock. The mean and median price for Campbell stock were both higher than those for Edwards. The most commonly assigned price for each stock was $10. The range between high and low price was greater for Campbell ($30) than for Edwards ($17.50).

Question No. 3: Do you consider an investment in Campbell Corporation stock to be: (a) extremely risky, (b) risky, (c) marginal, (d) safe, or (e) extremely safe?

Question No. 4: Do you consider an investment in Edwards Corporation stock to be: (a) extremely risky, (b) risky, (c) marginal, (d) safe, or (e) estremely safe? (See Table 11.3)

## TABLE 11.3

Questions Three and Four

| | Campbell | | Edwards | |
|---|---|---|---|---|
| | Number of Responses | % | Number of Responses | % |
| Extremely risky | 5 | 35.7% | 3 | 21.4% |
| Risky | 6 | 42.9 | 7 | 50.0 |
| Marginal | 2 | 14.3 | 3 | 21.4 |
| Safe | 1 | 7.1 | 1 | 7.1 |
| Extremely safe | 0 | | 0 | |
| | 14 | | 14 | |

| | Points | Number of Responses | Points | Number of Responses | Points |
|---|---|---|---|---|---|
| Extremely risky | 5 | 5 | 25 | 3 | 15 |
| Risky | 4 | 6 | 24 | 7 | 28 |
| Marginal | 3 | 2 | 6 | 3 | 9 |
| Safe | 2 | 1 | 2 | 1 | 2 |
| Extremely safe | 1 | 0 | | 0 | |
| | | 14 | 57 | 14 | 54 |

| | | |
|---|---|---|
| Weighted Average | 4.07 | 3.86 |

| | Number of Responses | Percentage |
|---|---|---|
| Campbell is more risky | 5 | 35.7% |
| Edwards is more risky | 4 | 28.6 |
| Both are equally risky | 5 | 35.7 |
| | 14 | |

This question asked the respondent to rank an investment in Campbell and Edwards stock according to risk. The majority of respondents rated an investment in Campbell to be either extremely risky (35.7%) or risky (42.9%). Most analysts also considered an investment in Edwards to be either extremely risky (21.4%) or risky (50.0%). If point values are assigned for degrees of risk, Campbell (4.07) is found to be slightly more risky than Edwards (3.86). More than one-third of the respondents (35.7%) rated Campbell as riskier than Edwards, or just as risky (35.7%). A somewhat smaller group (28.6%) thought Edwards to be the riskier investment.

Question No. 5: Which company will experience more growth over the next five years? (See Table 11.4)

TABLE 11.4

Question Five

| | Number of Responses | Percentage |
|---|---|---|
| Campbell | 3 | 20.0% |
| Edwards | 2 | 13.3 |
| Equal growth | 5 | 33.3 |
| No opinion | 5 | 33.3 |
| | 15 | |

Three respondents (20.0%) thought Campbell would experience more rapid growth than Edwards over the next five years. Two analysts (13.3%) thought Edwards would grow faster. An equal number of analysts either thought the companies would experience equal growth (33.3%) or had no opinion (33.3%).

Question No. 6 Please state the reasons for your answers to the first five questions. Feel free to use more space if needed.

When asked to state reasons for the answers given to the first five questions, the analysts favoring Campbell Corporation said:

1. "While Edwards sales have grown considerable, its margins indicate poor management, its cash flow has gone negative and it has already borrowed more than its worth. Campbell is in better control of its expenses and has some positive trends with decent rates of return, even though it is leveraged."

2. "While little information is given as to the state of the art of either company, its place in the software industry and/or other pertinent management factors, this questionnaire appears to me to be constructed around whether I would invest in a computer software company which either expenses or capitalizes R&D construction costs. This has not been resolved yet by the SEC or ADAPSO. However, based on the paucity of data presented, I still favor Campbell Corporation for its long-term solvency as well as leverage factors plus software."

3. "Looks like same company with different accounting (Comserv?). Hard to assign value without knowing details of "construction costs"--for example, will there continue to be 30% of revenues in next couple of years? However, the stock market would probably value Campbell at a higher price since it is showing 'profits'."

4. "Since an 'investment' (speculation would be more accurate) must be made, prudence dictates that the great bulk of the money ought to be applied to the 'safest' equity, Campbell. If Edwards grows more, not all is lost. Earnings are better than no earnings. In the absence of earnings, book value must suffice as a basis for pricing; this is the basis behind Question 2 ($8 for Campbell, $3 for Edwards). In the absence of a satisfactory asset base, the only predicate for investment is least risk (P-E) or pure guesswork; so much for Questions 3 and 4 (Campbell--risky; Edwards--extremely risky). Answer to Question 5 (no opinion) implies strongly that there is no satisfactory basis for projection of growth."

Analysts preferring Edwards Corporation had the following comments:

1. "Difference turns on capitalizing (Campbell) or expensing software development and purchases (Edwards).

   Write-off understates earnings initially since it ignores the investment aspect. Later earnings are overstated since development costs were charged earlier.

   Edwards will be worth higher P/E since no surprise write-off of unsuccessful products and company likely more soberly view--so easier to finance growth.

   Both companies are making heavy up-front software R&D investments--somewhat masking a profitable business. Needs analyses of sales and profits generated by earlier software R&D expenditures for evaluation of both companies."

2. "Capitalization of software expense at Campbell Corporation lowers quality of reported earnings. Any changes (short-term) in technology could subject Campbell to write-offs. Also, debt ratios are

high given poor quality of earnings. Both companies are small and subject to large company competition."

3. "It remains to be seen whether the cost increase incurred to buy revenue increases in 1983 will prove profitable. That will require (a) strong further revenue growth and/or (b) ability to cut cost without impairing revenue and (c) ability to maintain existing business. For each company I judge underlying earnings may roughly be $2.50. I give Edwards a 10X multiple and Campbell a 4X because Edwards' cost capitalization increases risk and dampens upward earnings response if things go well. If either software product is unique, and is going to be a barn burner, these financials don't show it."

4. "Questions 1 through 4 reflect Campbell earnings being overstated while Edwards understated--but Wall Street pricing reflecting current reported EPS.

This questionnaire is incredibly stupid--the development capitalization issue deserves a more intelligent consideration by the accounting and investment communities!"

One analyst's response was mixed. Although 100% of investment funds (Question 1) would be allocated to Edwards, Campbell's stock ($31) is valued higher than Edwards ($19). Campbell is considered to be an extremely risky investment, whereas an investment in Edwards is considered safe. Campbell is expected to experience more growth over the next five years. The following reasons were given for these responses:

Question 1 (Allocate 100% to Edwards)

> "While Campbell appears to be growing more rapidly and has stronger profitability ratios, its accounting is responsible for jazzing up the numbers vis a vis Edwards. Like many companies in the software group (CMSV, AAC) Campbell's financials are built on a house of cards."

Question 2 (Stock Price--Campbell $31; Edwards $19)

> "Because investors do not discriminate regarding quality of earnings, Campbell's record appears more solid. Thus, I have arbitrarily assigned a value to Campbell of five times revenues which is how the market values similar companies. I have accorded a lower valuation--three times revenues to Edwards. Likewise, investors using some factor of book value

to value the investment would start off on a higher base with Campbell, whose book value would include $15 million in software plus education construction costs as assets, whereas Edwards books none."

Questions 3 & 4 (Campbell-extremely risky; Edwards-safe)

"For reasons highlighted in Question 1 and Question 2 above, I consider Campbell's accounting to fly in the face of conservatism, which oftentimes catches up with companies. I feel the low quality of its earnings impairs its suitability as an investment, especially when one is looking out five to ten years. It could be suitable for a short-term trader with a six month time horizon."

Question 5 (Campbell will experience more growth)

"In the early stages of product development, Campbell will be deferring more of its costs, while Edwards will be expensing its costs. Therefore, Campbell will appear to have more rapid earnings growth."

General Comment: "Do not agree with Campbell's method of accounting for what it calls 'computer software

and educational courseware construction costs.' Construction implies product development, not enhancements, and I question the suitability under FASB No. 2 in deferring these costs."

Some analysts treated both companies equally. Their comments were as follows:

1. "Companies are the same except for accounting treatment of computer software and education courseware construction costs."

   "Riskier than Edwards because more aggressive accounting, but this issue is being debated--amortization and capitalization may more clearly portray match of income vs. expense but is more open to abuse."

2. "Obviously the two companies are the same except for the accounting treatment of software development cost. The accounting treatment has little bearing on the fundamental worth of a company. The two are of equal but low value. Both are risky, unprofitable and unseasoned."

3. "These companies are identical as to business and their potential growth rates. The financial statements are identical except that Edwards writes off its courseware construction costs and Campbell amortizes them. For most investors this is misleading but for evaluation purposes both companies must be valued using comparative accounting methods. While Edwards accounting is more conservative than Campbell's, both companies should have the same stock price."

4. "Obviously the same company using different accounting rules."

5. "You are asking questions about an industry that defies analysis on basis of accounting. As an advisor, given risk assumption of Mr. Madison, I'd suggest buying both."

Several analysts returned the questionnaires blank, or with minor notations. Comments centered around the fact that filling out the questionnaire would take too long to fill out.

Question No. 7: Do you consider yourself to be a specialist in the software industry? (See Table 11.5)

TABLE 11.5

Question Seven

| | Number of Responses | Percentage |
|---|---|---|
| Yes | 8 | 53.3% |
| No | 7 | 46.7 |
| | 15 | 100.0% |

Eight of the fifteen respondents (53.3%) considered themselves to be specialists in the software industry.

## SUMMARY

The response rate was too low to conduct any kind of meaningful statistical analysis. However, the fact that 8 out of 13 analysts would treat the companies differently is significant. Furthermore, of the 5 analysts that would accord both companies the same treatment, their responses indicate that one reason for identical treatment was because they subscribe to the efficient market hypothesis, which states that accounting policy does not make a difference. The Jensen study, which used a research methodology that was almost identical to the one used in this chapter, concluded that the accounting policy chosen does influence analysts' decisions.

## FOOTNOTES

[1]A similar approach was used in Robert E. Jensen's doctoral dissertation at Stanford University. That study investigated relationships between (a) security evaluation and portfolio selection and (b) alternative inventory valuation and depreciation methods in financial reporting. See Robert E. Jensen, "An Experimental Design for Study of Effects of Accounting Variations in Decision Making," Journal of Accounting Research, Autumn, 1966, 224-238. The questionnaire is reproduced in Appendix J.

[2]The financial information in the Appendix K for Campbell Corporation (1981-1983) is actually the financial data for Comserv Corporation for 1980-1982. The dates were changed for purposes of this study to make the financials appear more current. The financials for Edwards Corporation for 1981-1983 actually reflect what Comserv Corporation's financials for 1980-1982 would have looked like if Comserv had expensed all software costs as incurred. Comserv's actual stock price for 1982 fluctuated between $11.50 and $19.75. For 1981, it fluctuated between $9.17 and $16.00.

# CHAPTER 12

# AN INTRODUCTION TO PART III

Part III addresses issues relating to software taxation, both at the federal and state levels. This aspect of software accounting was first revealed to me during the course of the interviews conducted with executives of software vendor and user companies. A literature search later revealed that most of what has been written on software accounting in recent years has been on the tax aspects of the subject. Prior to the Burns and Peterson article that appeared in the April, 1982 issue of The Journal of Accountancy, the literature addressed software taxation issues almost exclusively. The interviews conducted with corporate executives led me to seek out and interview a number of attorneys specializing in software taxation. Such experts were not difficult to find; their names kept appearing in the literature, and their names were listed in the telephone directory.

A number of tax aspects remain in a state of flux. At the state level, software that is sold or leased might trigger a sales or use tax, depending on the state involved, the type of software involved, the means used to deliver the software, and whether the software is bundled with hardware. The property tax might be triggered if the

software is in the possession of an owner or lessee on the property tax date. One of the central issues regarding state taxability revolves around whether the software in question is classified as tangible or intangible property. If tangible, a number of states would impose a sales, use or property tax on the sale, lease or ownership of the software. However, in some states, "canned" or "off the shelf" software is considered tangible, while "custom" software is intangible. Distinguishing between the two categories can sometimes be an exercise in frustration, especially if standard software is purchased and then customized to fit user specifications. Another complicating factor is the mode of delivery. Software delivered in the form of a tape or disk may be considered tangible and therefore subject to tax, whereas software that is delivered over telephone wires may be classified as intangible electrical energy. Most states have rules to govern the various possibilities, but the states are in conflict. Each state legislature (51 of them, if you include the District of Columbia) and state court system has the right to establish its own view, and almost all states have exercised this right, resulting in many sets of different rules to govern the

taxability of software. What may be a taxable event in one state may be tax-free in another state, which makes life more complicated for corporations that engage in multi-state business, but also provides numerous tax planning opportunities. As technology advances and states continue to search for new sources of tax revenue, the taxation of software changes on a state by state basis. State courts continue to hear cases on software taxation, and the decisions rendered in 1985 may be different than the decisions the same state court rendered ten years ago. State legislatures also continue to change the rules, making it difficult for businessmen to plan.

At the federal level, there are two tax incentives that may apply to software expenditures. The investment tax credit may be taken on certain software that is bundled with hardware, but at least one federal court has held that unbundled software also qualifies for the tax credit. To make matters more complicated, there is a movement afoot to repeal the investment tax credit, which means that software costs will no longer qualify for this credit. The credit for research and experimental expenditures may also apply for certain software

expenditures, but the rule on this credit has not yet been clarified and will not be clarified until the end of 1986, at the earliest. Furthermore, this credit is due to expire at the end of 1985, but there is another movement afoot to extend its expiration deadline.

With all these fascinating and unsettled aspects of software taxation, it was decided that an attempt would be made to uncover the current practices of software vendor and user companies. In order to gather the necessary data, a series of questions were included in the questionnaires that were sent to software vendors and software users. Responses to these questions were discussed in Chapters 3 and 6. Court briefs of the most important cases are included in Appendix C. Applicable IRS pronouncements are reproduced in Appendix D, which may be referred to when reading the material on federal taxation. The DPMA Position Statement on Software Taxation is reproduced in Appendix E. Although the material for Part III was

written with the professional in mind, much can be learned by lay readers as well. An attempt has been made to write in a style that is both understandable to the lay reader and sufficiently precise for the specialist.

Chapter 13 addresses state software tax issues, that is, sales, use and property taxation. The material is assembled in a more or less chronological pattern; the earlier cases are discussed before the most recent cases. This sequence makes sense, since the most recent cases rely on the precedent of the older cases. (All this sounds so historical - the oldest software case was decided in 1972, after World War II, Korea and Vietnam). The earlier cases could not rely on software case precedent, because there was none, so cases in related areas, such as film-making, the sale of information, the Uniform Commercial Code and data processing service bureaus had to be cited instead. The most important of these related cases are also discussed in this chapter, and are summarized in Appendix C. The last portion of the chapter provides a summary of software taxation on a state by state basis.

Chapter 14 discusses federal tax law relating to software. Included in this chapter are discussions of the investment tax credit and the credit for research and experimental expenditures. Both areas are in a state of flux, and the chapter addresses this situation. The material contained in Appendices C and D might profitably be read in conjunction with this chapter, as these appendices contain summaries of relevant federal cases and a full text of the three IRS pronouncements that are on point. Responses to the tax questions in the software vendor and user questionnaires (Chapters 3 and 6) might also be profitably reviewed.

Chapter 15 provides a summary of Part III, and relates the material in this part to the material in Part I.

# CHAPTER THIRTEEN

# STATE TAXATION OF SOFTWARE

## BACKGROUND

Prior to mid-1969, State taxation of computer software was not an issue. Companies that sold hardware included the software at no extra charge. The price of the software was "bundled" with that of the hardware. In 1969, IBM became the first major hardware manufacturer to state separately the price of its hardware and software.[1] The decision to separately state the price of hardware and software was partially in response to anti-trust pressure.[2] As a result of IBM's announcement, a new industry developed--that of software manufacturing. As of the end of 1983, there are more than 4,000 independent manufacturers of software in the United States alone. Many of these firms are small in terms of revenue, and are privately held, but some software manufacturers are publicly owned and are among the Fortune 1000.

Since the unbundling of software in the late 1960's a series of controversies have developed, primarily revolving around the issue of whether software is tangible or intangible for State sales, use, and property tax purposes, as well as for federal tax purposes.[3] If software is classified as tangible personal property, it is generally subject to State sales, use, and property taxation. If intangible, it is generally exempt. As of late 1983 thirty-three States assess a sales or use tax on prewritten programs and twenty States

do so for custom programs.[4] One reason for the difference in tax treatment is that standardized programs are sometimes viewed as a product or "good," whereas custom programming is looked upon as a service in some States.

The advent of the taxation of the sale of software has generated much controversy.[5] Part of the problem lies in the fact that there seems to be more than one acceptable definition of "software," and there is no clear-cut line that distinguishes a software product or "good" within the meaning of the Uniform Commercial Code[6] from a service, or even, in some cases, what distinguishes "software" from "hardware." We now turn to that issue.

## WHAT IS SOFTWARE?

In order to analyze the various methods of accounting for software it might be good to start with a definition of software. Unfortunately, no single definition is currently undisputably accepted. Software might be defined as the programs that tell the computer what to do. Or, it might be defined as total data processing expenditures less hardware, communications and supply costs. Another definition might be total data processing personnel costs plus the costs associated with the purchase or lease of computer programs developed by outside organizations. Software cost might also

include the portion of hardware expenditures that reflect the bundled operating system component. Certain end user expenditures might also be included in the definition of software costs.

The most broad definition would be that software includes everything that is not hardware, which would include manuals and other educational materials as well as personnel training program costs and hardware maintenance costs.[7]

Computer hardware is generally thought to consist of the physical equipment that actually makes up the computer system, such as the central processing unit, input and output devices, and an information storage center.[8]

The Computer Dictionary and Handbook has defined software as:

> 1. "The internal programs or routines professionally prepared to simplify programming and computer operations...
>
> 2. Various programming aids that are frequently supplied by the manufacturers to facilitate the purchaser's efficient operation of the equipment. Such software items include various assemblers, generators, subroutine libraries,

compilers, operating systems, and industry-application programs."[9]

Frank has defined software as:

"...that which could be invoked by hardware... software includes the design and development of computer programs as well as their maintenance. It does not include the costs associated with operations."[10]

The Internal Revenue Service defines computer software as:

"...all programs or routines used to cause a computer to perform a desired task or set of tasks, and the documentation required to describe and maintain those programs. Computer programs of all classes, for example, operating systems, executive systems, monitors, compilers and translators, assembly routines, and utility programs as well as application programs are included. 'Computer software' does not include procedures which are external to computer operations, such as instructions to transcription operators and external control procedures."[11]

The definition of software promulgated by the National Bureau of Standards[12] and adopted by the U. S. Bureau of Standards[13] is: "Computer programs, procedures, rules, and possibly associated documentation concerned with the operation of a data processing system."

Several courts and State legislatures have also defined software. Some have even made distinctions between systems software and applications software. The Supreme Court of Tennessee[14] has defined a systems (operational) program as one that is fundamental to the functioning of the hardware, or software that controls the hardware and makes it run.

Bryant and Mather[15] state that systems software consists of:

1. compilers, which are used to translate symbolic code into machine language, and which are also capable of replacing a series of instructions with subroutines;

2. sorts, which assemble and file items of data in a certain sequence or order; and

3. utility routines, which perform functions such as transferring data from one magnetic tape to another.

Applications software was viewed as performing useful tasks, such as employee payrolls or loan amortization schedules.[16] Accounts receivable, payable, inventory and even home computer command modules, diskette and cassette programs would be included under this category.

The reason for this systems/applications distinction is due to tax treatment. Systems software may be regarded as an integral part of the hardware, therefore, making it tangible property subject to tax in some jurisdictions.[17] Applications software is treated by some jurisdictions as intangible property not subject to taxation.

Anthony G. Ferraro[18] has defined hardware and software as follows:

> "Hardware consists of the electronic components and mechanical components that comprise a series of machines which have the ability to interpret and follow software instructions to produce a useful product. Software consists of programs that are used to operate the machine to make the system produce a desirable result. Hardware cannot perform functions for which it was designed without a software program.

There are two kinds of software, both consisting of tangible instructions. They differ only in their intended purpose. One is called "operational" software, and the other is called "utility" or "application" software. Operational systems software is the written operating instructions, programmed into tape, for the purpose of making a computer operational. For example, a computer has operational software programs so that it will function as determined by the design and the engineering of the particular computer. These same software instructions would be furnished to all users of that same type of equipment. The expense of this basic engineering cost is the same as the engineering cost of any other operational program. Whether the cost is handled as an engineering expense or as a software cost is merely a matter of company policy.

Application or utility software is designed to allow the specific user better to utilize the equipment. The cost of materials and labor to develop the systems analyses, systems designs and programs are all part of the computer software program. This involves endless man-hours whereby

these products are outlined, established, debugged and tested."

In the same journal, Karl Heinzman[19] describes software as follows:

> "'Software' may be very broadly defined as a collection of instructions of programs (such as assemblers, compilers, utility routines, application programs and operating systems) which are fed into a computer to tell it what to do. There are two types of computer programs or procedures (software) which must be recognized:
>
> (1) Those which have to do with the operation of a computer, sometimes called basic software, system control programs or computer operational software (...operational software);
>
> (2) Those which have to do with the implementation of a system, procedures or computer applications which are sometimes referred to as application programs, product programs, custom software services or computer application software (...application software)."

Some State legislatures[20] have split hairs even further by distinguishing an "off the shelf" or "canned" program from a "custom" program. A "canned" program is one that is sold to several users, whereas a "customized" program is written for one user according to that user's specifications. However, problems of definition can develop when a seller of software makes changes in a "canned" program to meet the requirements of one particular user. How extensive can the changes be before the "canned" program becomes a "customized" program?

The Financial Accounting Standards Board has issued an Interpretation[21] and a Technical Bulletin[22] on the topic of software accounting. Neither publication defines software, although they do state that, for accounting purposes, software costs need not always be treated as research and development costs which must be expensed. Unfortunately, neither pronouncement clearly states when "software costs" (whatever that term means) can be capitalized and amortized for financial accounting purposes.

With all these conflicting and inconsistent definitions of software being offered by various private groups, federal agencies, State legislatures, and a multitude of courts, it is no wonder that the issue of software has become so complex. And, it appears as though the conflicts involving

software will not be resolved at any time in the near future. As technology continues to evolve the very nature of software will also change. Already a hybrid form called "firmware" has evolved, which is separate and distinct from both hardware and software.[23]

## TANGIBLE v. INTANGIBLE

The primary issue in software tax cases is tangibility. If software is viewed as tangible it is often subject to state sales, use and property taxes; if classified as intangible, it is often exempt from tax. Several lines of legal reasoning have been used to justify classifying software as intangible, and therefore exempt from tax.

The "knowledge" rationale and the "personal service" rationale were both used in District of Columbia v. Universal Computer Associates,[24] the first case to address the taxability (and tangibility) of computer software. (See Case No. 18 in Appendix C for more detail.) In that case, a custom program and a "canned" program were held to be intangible property and therefore not subject to the personal property tax. The reasoning was that it was the intangible information contained on the cards that was being purchased and not the cards themselves. Once the information contained on the cards was transferred into the computer, all that remained was the knowledge, which is intangible.

Other cases have relied on a similar line of reasoning to justify the classification of software as intangible. In a Tennessee case,[25] it was held that both systems and applications software are intangible in cases where the tangible medium used (card, tape, disk, etc.) is either returned to the seller or destroyed. The reasoning is that the property purchased is actually intangible knowledge, and the use of a tangible medium to transfer that intangible knowledge is "merely incidental to the purchase of the intangible knowledge and information stored on the tapes."[26]

Other courts have expanded on the knowledge rationale first espoused in Universal Computer Associates and Commerce Union Bank v. Tidwell (see Case No. 11, Appendix C). The "essence of the transaction" test was applied by the Texas Supreme Court[27] three years after Tidwell. Following the reasoning of the District of Columbia Circuit Court and the Tennessee Supreme Court, the Texas court held that, where the transaction is in essence the purchase of an intangible, such as a custom or canned program, the sale is exempt from the Texas sales tax, which only applies to the sale of tangible property.

The knowledge rationale, as applied in the District of Columbia, Tennessee and Texas, classifies both custom and

canned software as intangible; both systems and applications software are so classified.

The "relative value" test has also been applied to software tax cases.[28] This test recognizes software creation to be a process involving both tangible and intangible elements. Most of the value of a software product is attributable to the intellectual content; the tangible medium used to store and transfer this knowledge, cards, a tape or disk, are incidental costs. Programs selling for $50,000 might be stored on tapes or disks costing under $50, so the purchaser of a program is actually buying knowledge rather than a physical product.

The "mode of transmission" test has also been applied in a number of cases.[29] This test has a few variations, but basically stands for the proposition that, where the knowledge can be conveyed from the seller to the buyer without the use of a physical medium, such as cards, a tape or disk, the transaction involves the sale of intangible property. This transfer can occur, in theory at least, by having the seller's programmer give verbal instructions to the buyer's computer operator. A more practical approach, and one that is often used,[30] is to transfer the program from the seller's computer to the buyer's computer directly, over telephone lines. Using this mode of transmission can save

$30,000 if the sale of a $500,000 program involves a 6 percent sales tax State, provided the sale would otherwise be taxable.[31]

Several courts have made the analogy of software programs to films and phonograph records.[32] Films and records have much in common with computer software but several distinctions can be made as well. Most of the value of a film or record (or a book, for that matter) is attributable to the intellectual and artistic content rather than the celluloid, plastic or paper upon which that content is recorded.[33] Buyers of records and film (movie theaters) do not consider themselves to be purchasers of celluloid or plastic. However, one critical distinction is that the celluloid upon which the movie is recorded is "...a crucial artistic element of the motion picture; without film there could be no movie."[34]

Another distinction that can be made between film and software is that the media upon which the computer program is recorded (cards, tape, disk, etc.) can be returned to the seller or destroyed after the program has been run through the computer; it is of no further use or value. Movie film, on the other hand, has continuing value after the movie has been shown; it can be used again and again.[35] In Tidwell, the court also made an analogy between a phonograph record,

which is retained by the purchaser after use, and a computer tape, which is returned to the seller and is of no further use to the purchaser once the program has been run on the computer.[36]

Another distinction that has been made between software and films, records and books is that the latter three items can be used immediately upon purchase, whereas software must first be translated into a language that can be understood by the computer.[37] Furthermore, the latter three items are immediately perceptible to the senses, whereas software, in essence, is not.[38]

Another distinction that has been made between software and films, records and books is that the software sales or licensing agreement often includes periodic updating by the seller. Films, records and books, on the other hand, are not updated after sale.[39] However, this distinction does not apply to the many programs that are not updated after sale.

Courts have also wrestled with the issue of whether the sale of computer software constitutes the sale of a product or a personal service. This issue is frequently raised in service bureau cases,[40] although analogies to the Uniform Commercial Code[41] and the sale of information[42] have also

been made. Generally speaking, if software is viewed as being a product or "good," it is tangible property subject to sales, use and property taxation. If viewed as a service, software is intangible and not subject to these taxes. Canned programs are more likely to be viewed as products than are custom programs, which involve more personal service. Software often involves elements of both sales and services, and courts have developed several tests to aid in making this distinction. One test is whether the transfer of property is necessary or merely convenient in order to achieve the primary purpose of the transaction.[43] Another test is whether the value of the materials is small compared to the value of the services.[44] A third test is whether the item transferred has value only to the purchaser, as is the case when a custom program is acquired, or whether the item can be sold to the general public, as is the case with canned programs.[45]

In the case of canned programs, no services are performed at all; they are sold "off the shelf" as is, and are available to the general public. They are conveyed to the purchaser using a tangible medium, and there is no question that the transfer of the tangible property (cards, tape, disk, etc.) is more than merely incidental to the transaction. In contrast, custom programs are different for a particular customer and are of no value to the general public.

The value of the tangible medium is small in comparison with the value of the services required to write the custom program.

Before discussing the major cases that have been decided in the relatively new area of software taxation, a review of the oft-cited cases involving film, the sale of information, the Uniform Commercial Code, and computer service bureaus should be made, since the same reasoning regarding the tangibility and sale versus service issues applies to these areas.

## THE FILM CASES

Film making and software creation have much in common. In both cases, the value of the product is derived almost entirely from the intellectual effort put forth. The celluloid upon which the film is recorded and the cards, tape or disk upon which software is recorded are incidental expenses. The purchaser of a film or software product is making the purchase for the intellectual content, not for the tangible property upon which the film or software is stored. Taxpayers have argued that this intangible purchase is not subject to the sales, use or property tax.

In United Artists Corp. v. Taylor,[46] the New York court, in holding that the New York City sales tax law applied to the lease of a movie film print, said:

> "The transaction which is the subject of the tax under review consists of the transfer by the distributor to the exhibitor of the possession of corporeal property in the form of positive and negative prints of photoplays with the license to use or exhibit them for a specified time. The license to exhibit without the transfer of possession would be valueless. Together they are one transaction and constitute a sale within the definition of Local Law No. 24."

In Saenger Realty Corp. v. Grosjean,[47] the Louisiana Supreme Court held that the operator of a movie theater was liable for the Louisiana sales tax and that the measure of the tax was the amount paid to the producer for the lease of the film print.

The frequently cited case of Crescent Amusement Co. v. Carson,[48] (see Case No. 16, Appendix C) citing United Artists and Saenger Realty, held that the rental or leasing of motion picture films is a rental or leasing of tangible personal property within the meaning of the Tennessee Sales

Tax Law, and that the correct measure of the tax is the gross amount of rent paid, not the cost of the physical material in the film print. The court stated that:

> "There is scarcely to be found any article susceptible to sale or rent that is not the result of an idea, genius, skill and labor applied to a physical substance. A loaf of bread is the result of the skill and labor of the cook who mixed the physical ingredients and applied heat at the temperature and consistency her judgment dictated. A radio is the result of the thought of a genius, or of several such persons, combined with the skill and labor of trained technicians applied to a tangible mass of substance. An automobile is the result of all these elements, and of patents, etc.; and so on, ad infinitum. If these elements should be separated from the finished product and the sales tax applied only to the cost of the raw material, the sales tax act would, for all practical purposes, be entirely destroyed."[49]

In Michael Todd Co. v. County of Los Angeles,[50] (see Case No. 32, Appendix C) an ad valorem personal property tax was assessed against the Michael Todd Company on the film negatives of a copyrighted motion picture entitled "Around

the World in Eighty Days." A tax of $105,064.46 was levied, based on an estimated cash value of $1,526,900. Without copyright protection, the negatives would have a salvage value of $1,000. In a prior case,[51] the California court held that copyrights are not subject to the personal property tax. The court held for the County of Los Angeles, stating that the value of intangibles can be included in the valuation of tangible property.

In District of Columbia v. Norwood Studios, Inc.,[52] (see Case No. 17, Appendix C) the issue was whether the sale of a motion picture produced under contract for television is the sale of personal services or the sale of a product subject to the sales tax. Norwood argued unsuccessfully that the tangible personal property involved was an inconsequential element and was therefore not subject to the sales tax.[53]

The Alabama Supreme Court has held that leased motion picture films constitute tangible personal property for privilege or license tax purposes.[54] The Arkansas Supreme Court held in American Television Co. v. Hervey,[55] that a levy of a use tax on videotape material used by television stations pursuant to license agreements is a tax on tangible personal property. That court said:

> "We agree with the state that the right to use property cannot be separated from the property

itself and the 'right' spoken of by appellant would have no value except for the use of the tape or film -- the two cannot be separated."[56]

The Michigan Appellate Court held that the master film negatives used to store printed material are tangible property even though the value of the property is in the information that is stored and not in the film itself.[57] In support of its contention that the master negatives were intangible property, University Microfilms cited a line of cases holding real estate abstract books[58] and computer software[59] to be intangible, arguing that its master negatives are analogous to abstract books and software because these items are only valuable for the information they contain.

The federal courts have addressed the film tangibility issue from an investment tax credit perspective. In Walt Disney Productions v. United States (Disney I),[60] (see Case No. 42, Appendix C) master film negatives, which are used to make film prints, were held to be tangible property eligible for the investment tax credit. The master negatives, which are used to make other products (film prints), were likened to a machine which makes other products.

In Disney III,[61] (see Case No. 43, Appendix C) the fact situation was similar, but the issues were somewhat different. In holding that the master film negatives in question were tangible property qualifying for the investment tax credit, the court also held that the investment tax credit taken is not subject to recapture, even though the film prints were used predominantly outside the United States for the period under audit. Treasury Regulation Section 1.48-1(g)(i) provides that property physically located outside the United States during more than 50 percent of the year shall be considered used predominantly outside the United States, which would make the property ineligible for the investment tax credit. However, the master negatives (upon which the investment tax credit was claimed) remained in the United States throughout 1970. Only the exhibition prints left the country, and the investment tax credit was not claimed on them. Therefore, no investment tax credit need be recaptured. The court also held that even though the property in question may be treated as intangible for depreciation purposes, such treatment does not preclude tangible treatment for purposes of the investment tax credit.

## CASES INVOLVING THE SALE OF INFORMATION

### Stock Exchange Data

In Dun & Bradstreet v. City of New York,[62] the New York Court of Appeals considered the applicability of a local sales tax law in relation to the rendition of professional services. The taxpayer was in the business of supplying to its subscribers highly confidential information dealing with the financial standing of persons engaged in various businesses. As an incident to this service, each subscriber received for his own personal use a reference book at no extra charge.

In refusing to allow the City of New York to tax the value of this reference book, the court articulated two factors that have since been used by other courts to distinguish tangible personalty from intangibles. First, the subscriber was able to make only a limited use of the books. Under the subscription contracts, title to the books remained in the taxpayer and the subscriber was expressly forbidden to share the confidential information contained therein with the public. Second, and more important, the physical properties of the reference book were merely incidental to the services performed. As explained by the court:

"...The information furnished is of value to the subscribers and for it they pay, but not for the paper upon which the information is conveyed or for the reference books which are only guides to assist in the rendition of appellant's service. One does not think of a telephone company as a seller of books to its subscribers. It renders a service to make that service efficient, it furnishes its subscribers with books containing a list of its subscribers with their call numbers. The paper is a mere incident; the skilled service is that which is required."[63]

The two factors enumerated in this case have been used in software tax cases[64] to argue that software is intangible and therefore not subject to tax, since (1) the software license agreement prohibits the licensee to share the program with anyone else; (2) the licensor retains title; and (3) the physical medium used (cards, tape, disk, etc.) is merely incidental to the service performed.

However, magazines have been held to be tangible property, subject to the retailers' occupation tax unless otherwise exempt. The Illinois Supreme Court ruled that:

"The sale of magazines is essentially not different from the sale of a loaf of bread, or an automobile. While it is true that the utility or value of plaintiffs' magazines is in their content and not the paper and ink with which they are printed, the taxability of the transaction is not determined by weighing the value of the intangible properties of the item of sale, such as form, organization and design, against the value of its tangible properties, such as weight, size and texture. The test is, where tangible personal property is transferred, as the parties agree occurs in the transaction here involved, whether the transfer is the substance of the transaction or merely incidental to a service. In selling magazines by subscriptions, plaintiffs act as retailers of tangible personal property and as such are liable for retailer's occupation tax, if not otherwise exempt."[65]

Dun & Bradstreet can be distinguished from Time, Inc., on the basis of ownership and the nature of the information being conveyed. In Dun & Bradstreet, the licensee was paying for confidential information that could not easily be obtained elsewhere, and the information obtained could not be conveyed to others. In Time, Inc., the information could

easily be obtained from other sources, including the public library, without purchasing the magazine, and ownership changed upon purchase.

In another case,[66] Bunker-Ramo (see Case No. 6, Appendix C) provided stock brokers and security dealers with stock exchange information electronically for a fee. As part of the agreement, Bunker-Ramo installed tangible personal property to receive the electronic transmissions on the customer's premises at a cost varying between $6,644 and $16,522. Approximately 110 Bunker-Ramo employees were engaged in customer servicing and the reception, editing, transformation and preparation of raw data that is eventually transmitted to subscribers. Bunker-Ramo employees make frequent visits to subscriber premises to correct errors.

Bunker-Ramo contended that the transmission of this data constitutes a personal service and is therefore not subject to the Ohio sales tax. The Tax Commissioner alleged that such transmissions constitute the sale of tangible personal property subject to the sales tax.

The Ohio Supreme Court held for the Tax Commissioner. Citing American District Telegraph Co. v. Porterfield,[67] Randall Park Jockey Club v. Peck,[68] and Recording Devices, Inc. v. Bowers,[69] the court stated that Bunker-Ramo's trans-

actions would be considered sales because they involve the transfer of possession and licenses to use tangible personal property unless the transactions were found to be personal service transactions.

> "An examination of the record indicates that the activity which the appellee performs is a completely mechanized service transaction. It is not a personal service transaction in the sense that there are no people engaged in serving directly the subscribers of appellee. This service is rendered automatically by computers, communication lines and reception and display instruments."[70]

While some services rendered are tailored to the personal needs of subscribers, the relatively small number of people required to oversee, maintain and service the devices on the subscribers' premises indicated to the court that very little personal service was involved.

In Quotron Systems, Inc. v. Comptroller of the Treasury,[71] (see Case No. 33, Appendix C) Quotron provided its subscribers with stock exchange and other information electronically over leased telephone and telegraph lines from its computer in New York. Quotron provided the hardware its customers needed to receive the information. The

Comptroller contended that Quotron was providing both a service and hardware to its subscribers. Quotron maintained that only a service was provided, and that it was Quotron, not the subscriber, that was using the hardware. The court held that Quotron was not subject to a Maryland use tax on that part of its monthly charges which was attributable to use of the hardware where the hardware had no utility in and of itself to subscribers.

In its Quotron decision, the Maryland Supreme Court relied on Comptroller of the Treasury v. Chesapeake & Potomac Telephone Company,[72] which held that a two-step analysis should be employed when both services and equipment are involved.

First, the overall function must be characterized by the examination of various factors as either a rental or transfer of possession, or a service. Secondly, it must be determined whether that function is subject to a sales tax. In other jurisdictions in which the same or similar questions have been considered, the same analysis has been employed.[73] Courts in other jurisdictions which similarly have examined the relationship between equipment and services in characterizing an overall function, have applied a third standard.[74] This standard was expressed by the Supreme

Court of Illinois in Snite v. Department of Revenue as follows:

> "If the article sold has no value to the purchaser except as a result of services rendered by the vendor and the transfer of the article to the purchaser is an actual and necessary part of the service rendered, then the vendor is engaged in the business of rendering service and not in the business of selling at retail. If the article sold is the substance of the transaction and the service rendered is merely incidental to and an inseparable part of the transfer to the purchaser of the article sold, then the vendor is engaged in the business of selling at retail, and the tax which he pays for the privilege of engaging in such business is measured by the price which the purchaser pays for the article and the service incident thereto."[75]

Credit Information

In Credit Bureau of Miami County, Inc. v. Collins,[76] (see Case No. 15, Appendix C) the taxpayer provided credit information to customers both orally and in written form. The Ohio Supreme Court held that, in cases where information was transferred in written form, the tangible property con-

veyed was an inconsequential element in the transaction, and that the true object of the transaction was not the acquisition of the taxpayer's property, but rather the services the taxpayer provided.[77]

Mailing Lists

In Fingerhut Products Company v. Commissioner of Revenue,[78] (see Case No. 20, Appendix C) a direct mail merchandiser of a wide range of products purchased mailing lists from a broker. For these labels, Fingerhut paid a rental fee of $17.50 to $25.00 per thousand names. The value of the tangible material upon which the names and addresses are printed is approximately eighty cents per thousand.

The Commissioner assessed a tax deficiency on the rental of these lists, asserting that the lists constituted tangible personal property. Fingerhut contended that the essence of what it received from the brokers was not a physical list of names, but rather a service which supplied highly sophisticated advertising information which was an intangible commodity.

In its unsuccessful argument, Fingerhut maintained that its procurement and use of the mailing lists supplied by its brokers satisfies both of the criteria established in Dun &

Bradstreet v. City of New York,[79] which held that where the subscriber is able to make only limited use of the property and where the value of the physical property is incidental compared to the value of the service, the transaction will be viewed as the purchase of an intangible service rather than a tangible product. In holding the labels to be tangible, the court said:

> "We feel that the use of the Cheshire tapes, gummed labels...is a use of the tangible property of the medium distinct...in that the tapes and labels are physically separated and attached to the envelopes. In such a case, the physical manifestation of the property is itself used--not merely the intangible information."[80]

In Spencer Gifts, Inc. v. Director, Division of Taxation,[81] (see Case No. 36, Appendix C) the opposite conclusion was reached. Spencer extracted the mailing list information from a computer tape, which was then promptly returned to the vendor. The value of the information acquired far exceeded the value of the tape, which was returned. In holding that the leasing of computer information is not the leasing of tangible personal property, the court distinguished Spencer from Fingerhut. In Fingerhut, the physical

manifestation of the property itself (tapes and labels) was used, whereas in Spencer the information was received in incorporeal form. In a more recent case,[82] the New York court held that the purchase of mailing lists obtained by computer tape constitute the purchase of information rather than tangible personal property. However, the purchase of information is a taxable event in New York.[83]

## Artwork

Some courts[84] have made an analogy of software and certain artwork, since the value of both is attributable primarily to the labor involved and not the tangible property upon which the results of the labor are recorded. In Washington Times-Herald, Inc. v. District of Columbia,[85] the newspaper purchased the right to reproduce cartoons from the artist. These cartoons were transferred to the newspaper and were physically embodied in mats which were then used to reproduce the cartoons in the newspaper. In that case, the court held that what the newspaper had purchased was the right to reproduce the cartoons, and not the material upon which the cartoons were impressed.

> "The price was paid for the artists' work, i.e., for the right to reproduce the impressions on the mats--not for the mats themselves. The newspaper

bought the creation of the artist--not the material on which it was impressed--and the right to reproduce it. Without that right, the comic strips mats would be entirely worthless."[86]

A similar result was reached by the Florida court in Southern Bell Telephone and Telegraph Company v. Department of Revenue,[87] (see Case No. 35, Appendix C) where it was held that the sale of artwork that ultimately appears in the telephone book yellow pages constitutes the sale of a service rather than tangible personal property. The court reached its decision after considering the following factors:

(1) Whether or not the property to be transferred as a result of the transaction is already in existence or whether it is produced in the course of the services rendered;

(2) The value of the individual effort involved in the transaction as compared to the value of the property transferred;

(3) Whether or not it is essential to the transaction that the specific tangible personal property is created.[88]

## CASES INVOLVING THE UNIFORM COMMERCIAL CODE

The Uniform Commercial Code has different rules for "goods" and "services." If software is classified as "goods," it may be classified as tangible property in some states, thereby making the sale of software a taxable event. If classified as a service, the transaction may escape tax. The Uniform Commercial Code defines "goods" as:

> "...all things (including specially manufactured goods) which are movable at the time of identification to the contract for sale other than the money in which the price is to be paid..."[89]

Helvey v. Wabash County REMC[90] (see Case No. 25, Appendix C) addressed the issue of whether electrical energy is a "good" or a service. In order to be a "good" under the Uniform Commercial Code, the property in question must be (1) a thing; (2) existing; and (3) movable, with (2) and (3) existing simultaneously. The court held that electricity qualifies in each respect.

Although Helvey was concerned with whether the six year statute of limitations (for sale of a service) or the four year statute (sale of a "good") applied, the fact that electrical energy was classified as a "good" rather than a

service is significant, because software is sometimes transferred over telephone lines, and such transfers could be construed as being the transfer of tangible personal property subject to sales and use taxation, although several courts have suggested that a transfer of software over telephone lines is not a taxable event.[91]

In Carl Beasley Ford, Inc. v. Burroughs Corporation,[92] (see Case No. 7, Appendix C) the court held that the purchase of bundled hardware and software constitutes the purchase of a "good" rather than a service. The acquisition did not function properly due to faulty programming and Beasley sued for recovery of the purchase price under the Uniform Commercial Code. The hardware was virtually useless without the software.

In F & M Schaefer Corporation v. Electronic Data Systems Corporation,[93] (see Case No. 19, Appendix C) the court held software to be tangible for replevin purposes. In another case[94] decided at about the same time as F & M Schaefer, the New York court held that the purchase of a "turn-key" system involving both hardware and software constituted the sale of a "good," so that the Uniform Commercial Code's four year statute of limitations for breach of contract applies, rather than the six year statute for breach involving a service. The Triangle court (see Case No. 39, Appendix C)

based its reasoning on North American Leisure Corp. v. A & B Duplicators, Ltd.,[95] which held that a contract is for a "service" rather than "sale" when service predominates, and the sale of items is incidental. In Triangle, the precise converse was true. The essence of the contract was for the sale of goods. While certain services by Honeywell were contemplated, the contract was primarily one for the sale of goods.[96]

Chatlos Systems, Inc. v. National Cash Register Corporation, Inc.,[97] (see Case No. 8, Appendix C) also involved a breach of contract action. Chatlos purchased a computer system involving both hardware and software components from NCR. The system did not function as promised, and Chatlos brought an action for breach of warranty. The court held the property in question to be a tangible "good," and that the Uniform Commercial Code rather than common law contract law applied. The transaction was for the sale of goods notwithstanding the incidental service aspects and the lease arrangement.[98] On appeal, both parties conceded the applicability of the Uniform Commercial Code.

## CASES INVOLVING DATA PROCESSING SERVICE BUREAUS

Data processing service bureaus perform functions that are not always easy to classify as falling neatly and exclusively into either the product or service category. In an

early series of Ohio cases,[99] (see Case No. 1, Appendix C) the Ohio Supreme Court quoted an even earlier Arizona case, which set forth the following possibilities regarding mixed sales of services and property:

> "(1) The service is the main item sold and the property sold is incidental thereto and not separately charged (not a taxable sale as a sale of services).
>
> "(2) The services and property sold can be readily separated (one tax exempt and the other taxable).
>
> "(3) The service sold is incidental to the property and not separately charged (taxable in gross)."[100]

The Arizona court, recognizing that the category into which a vendor falls is a question of fact to be determined in light of all the evidence, stated that:

> "When there is a fixed and ascertainable relationship between the value of the article and the value of the service rendered in connection therewith so that both may be separately stated, then the vendor is engaged in both selling at retail and furnishing

services and is subject to the tax as to one and tax exempt as to the other. Where the property and the services are distinct and each is a consequential element capable of ready separation, it cannot be said one is an inconsequential element within the exemption provided by the statute. See Rice v. Evatt, 144 Ohio St. 483, 59 N.E.2d 927, 157 A.L.R. 572 (1945)."[101]

In Accountants Computer Services, raw data was received from customers in the form of punch paper tapes or adding machine tapes upon which the customer's debits and credits are recorded. Accountants then processed the information by machine and furnished individual clients with printouts that were used by the customer to draft financial statements, etc. Data were sorted, classified and rearranged by Accountants machine. The court held that this process results in the sale of a product rather than a service and, as such, is subject to the Ohio sales tax.

Central Data Systems provided clients with data processing, key punching, systems design and programming, and contract consulting. In this case, the court determined that what was being sold was a service rather than a product. Central can be distinguished from Accountants because, in Central, the company's professional workers

applied "thinking" as well as mechanical processing. It was the analysis and thinking skills of Central employees that was being sold; the data processing machinery and related printouts were merely used by Central personnel to assist them in rendering their personal service. Because the personal service was the main item contracted for, and the resulting printed matter constituted an inconsequential element for which no separate charge was made, the court held that the sale of the tangible personal property was not subject to taxation.

In Jergens, the company contracted with A. C. Nielsen Company, a market research organization. Nielsen was to compile statistical data as well as to provide analysis and interpretation of data, and to assist management in making marketing decisions based on the data provided. As an integral part of the service furnished, Nielsen assigned account executives to Jergens' account whose duty it was to analyze, interpret and present to Jergens' management the information developed by Nielsen in a meaningful and useful manner.

The Andrew Jergens Company case represents an even clearer example of a transaction involving the sale of a service rather than a product. The A. C. Nielsen Company was hired to gather, analyze and interpret data, and to

assist AJC's management in making marketing decisions. It was clearly the personal service of Nielsen and its staff that was contracted for; the tangible personal property that was transferred for communication purposes was an inconsequential element without separate charge. The entire transaction is exempt from the Ohio sales tax.

In its reasoning, the court cited several other Ohio cases[102] where the sales tax was assessed on the entire consideration paid in transactions that involved insignificant and inconsequential amounts of personal services. No reduction was made for the portion of the consideration that was attributable to personal services.

The rationale for not separating the inconsequential amount attributable to personal services from the amount attributable to tangible personal property is that: (1) nearly all transactions are, of necessity, mixed transactions involving at least a slight degree of personal service, and (2) where this degree of personal service is of insignificant consequence, both the practical problem of attributing to such service a percentage of the entire consideration paid, and the insignificant effect it would have on the amount paid in taxes, make such a distinction unreasonable and unnecessary.

Two years after the above three cases were decided, the Ohio Supreme Court was once again called upon to decide a computer service bureau case. In Citizens Financial Corp. v. Kosydar,[103] (see Case No. 10, Appendix C) Citizens provided both off-line and on-line services to the thrift industry.

In the "off-line" method, the tellers at the customer savings and loan manually record the daily deposits and withdrawals, and the recorded transactions are daily delivered to the taxpayer, where the information is converted by the computer into "computer legible media." Subsequently, taxpayer delivers to the customer a "hard copy printout" which provides the customer with an accounting journal of daily transactions, thus updating the individual account records. A fee is charged, based on the number of such accounts each customer maintains in the computer.

The "on-line" method consists of teller use of terminals which are located at the tellers' windows. Passbooks are placed in the terminals and by means of depression of appropriate keys, the transaction (deposit, withdrawal, or loan payment) is transmitted via telephone lines to taxpayer's computers. The computers then make the programmed calculation, printing the transaction on both the customer's passbook and upon a printout at the terminal. Subsequently, a

hard copy journal of transactions is delivered by taxpayer to the customer. A fee is charged, as in the off-line method.

The court held both the on-line and off-line transactions to be taxable and not within the personal service exemption. As in Accountants Computer Services, Inc. v. Kosydar,[104] the true object of the transaction was held to be the property produced, i.e., the "hard copy printouts" rather than a service. In its decision, the Citizens court used the criteria as enunciated in Koch v. Kosydar[105] to determine whether a service transaction existed.

In his dissent in Citizens, Justice Paul W. Brown, pointing to his dissent in United States Shoe Corp. v. Kosydar,[106] stated that the personal service exception must be seriously distorted before it can be construed to impose a tax upon a service transaction. He also cited Appendix 2 - 3.2d of 1 Bigelow, Computer Law Service (1975), State Sales and Use Taxes, which indicates that similar transactions would be exempt from the sales tax had they occurred in Connecticut, Louisiana, New York, Texas, Virginia, Washington, or Wisconsin.

In a Florida case,[107] the Department of Revenue enacted a rule construing computer software (punched cards, paper tape and typed sheets) to be tangible personal property and

subject to the sales tax. Nova filed a petition challenging the validity of the rule. The Administrative Hearing Officer in that case found that when computer software is sold it is the computer information which is transferred, and that the magnetic tape or punch cards which contain the information are only the means or method of transmitting it from the originator to the user. It was further determined that the tangible property (i.e., punch cards) involved in the process was an inconsequential element for which no separate charges were made, the consequential element being intangible property (computer information) which was not subject to the sales tax on tangible personal property. The conclusion was that Nova and other similar corporations were selling services to their customers which were exempt from the sales tax.

In Bullock v. Statistical Tabulating Corporation,[108] (see Case No. 5, Appendix C) customers brought in raw data, i.e., business records, invoices, etc., which Statistical Tabulating Corporation then translated into computer readable code and transferred onto cards that can be read by the customer's computer. Once read, the cards have no further use. There is no separate charge to the customers for the cards.

In holding that the transactions in question constitute the sale of services rather than tangible personal property, the Texas court used the same test it used in Williams and Lee Scouting Service, Inc. v. Calvert,[109] which stated that if the object or the essence of the sale is not tangible personal property but intangible property, then the transaction is not taxable under any definition of "sale."

In Miami Citizens National Bank & Trust Company v. Lindley,[110] (see Case No. 31, Appendix C) a bank performed data processing for other banks, and furnished its customers with a series of reports which reveal considerable information for use by the correspondent bank in making informed management decisions for future operations. The sales tax was assessed only on charges for computer printouts and not for programming time.

In holding the entire transaction to be taxable, the court reasoned that the true object of the transactions is the receipt of the printed form which contains the computer organized data.[111]

## CASES INVOLVING THE SALE OF SOFTWARE

Cases dealing specifically with the sale of computer software are of relatively recent origin. Prior to June, 1969, when IBM began stating separate prices for its

software,[112] the software was acquired in conjunction with the hardware. Shortly after this change in policy, State taxing commissions began to tax software as if it were tangible property. Soon, the issue of tangibility began to be settled in court.

The first case to address the software tangibility issue directly was District of Columbia v. Universal Computer Associates.[113] (See Case No. 18, Appendix C.) In this case, Universal purchased hardware and software from IBM. One set of punched cards was a special tax program developed jointly by Universal and IBM and owned outright by Universal. The other set of cards was a standard set used to run the computer.

The court ruled that the software portion of the purchase was intangible and was not subject to the personal property tax, and that the portion representing hardware was tangible and subject to the tax. The $290,000 purchase price was allocated 50 percent to the hardware and 50 percent to the software.

Since no previously decided case was directly on point, other cases dealing with the sales versus service issue were examined. The material of the punched cards themselves is of insignificant value. It was the knowledge contained in the cards that gave them value, and knowledge is intangible.

The court likened computer software to the cartoon mats involved in Washington Times-Herald v. District of Columbia,[114] where it was held that cartoon mats which were sold by publishing syndicates to individual newspapers were not tangible personal property subject to the District of Columbia sales tax.

In Universal, the court is of the opinion that the knowledge stored on computer cards, tapes or discs is even more demonstrably intangible intellectual property than the right to reproduce from the cartoonist's drawings involved in Washington Times-Herald.

Universal is distinguished from District of Columbia v. Norwood Studios, Inc.,[115] which involved the transfer of films where the producer of the films retained no interest in them and imposed no restriction on their use. The films became the property of the purchasers without qualification.

Because Universal Computer Associates was the first case to address the issue of software tangibility, it has been cited by many subsequent cases.

The following year, the California court addressed the tangibility issue. In County of Sacramento v. Assessment Appeals Board,[116] (see Case No. 14, Appendix C) data processing equipment and systems were furnished on a condi-

tional sales basis to the State of California. The tax assessor, in assessing the sales tax liability, valued the property at the full contract price. The equipment and systems in question consisted of both hardware and software components.

The court held that the tax assessor was in error when he valued the property at full contract price. The portion of the contract price attributable to software represents intangible property not subject to the sales tax.

In another early case,[117] Greyhound Computer Corporation (see Case No. 24, Appendix C) purchased several computer systems where the price of the hardware and software were not separately stated. Maryland treated the cost of the software as inseparable from that of the hardware and based its property tax assessment on aggregate purchase price, less depreciation, without allocating the cost of the software package between tangible property acquired and services to be rendered. The court held that it was error not to allocate the purchase price between the tangible and intangible components, and remanded the case for further proceedings.[118]

In 1976, the tangibility issue was decided in Tennessee, in the frequently cited case of Commerce Union Bank v. Tidwell.[119] In this case, Commerce Union Bank purchased

software for use in its business. The Commissioner of Revenue (Tidwell) assessed a tax deficiency, alleging that the transfer was one of tangible personal property subject to the Tennessee sales tax.

The bank alleged that while the intellectual processes may be embodied in tangible and physical material, such as punch cards and magnetic tapes, the logic or intelligence of the program is an intangible property right, and it is this intangible property right which is acquired when computer software is purchased or leased.

Tidwell viewed the purchase of software as analogous to the purchase of a phonograph record or the purchase or lease of a motion picture film. He argued that the present case is governed by Crescent Amusement Co. v. Carson,[120] (see Case No. 16, Appendix C) where a tax was levied on the rental of motion picture films.

In holding software to be intangible, the court rejected Tidwell's argument that software is similar to a motion picture film. Whereas, without a film there would be no movie, magnetic tapes and cards are not a crucial element of software. The whole of computer software could be transmitted orally or electronically without any tangible manifestations of transmission. Whereas, a product is created in the case of a film or phonograph record, there is no product in the

case of software. What is created and sold is information and the magnetic tapes which contain this information are only a method of transmitting these intellectual creations from the original to the user. It is merely incidental that these intangibles are transmitted by way of a tangible reel of tape that is not even retained by the user. Furthermore, Tennessee did not attempt to tax computer programs purchased by the bank which were transmitted to its computers from outside the State by way of telephone lines. That method was deemed to constitute the purchase of intangible personal property. The principle is the same; only the method of transmitting the information is different.

Another difference between software and phonograph records is the fact that, when the information is transferred from the tape to the computer, the tape is no longer of any value to the user; and it is not retained in the possession of the user. The information on the tape, unlike the phonograph record, is not complete and ready to be used at the time of its purchase. It must be translated into a language understood by the computer. Once this information has been translated and introduced into the computer and the tapes returned or the punch cards destroyed, what actually remains in the computer is intangible knowledge; this is what was purchased, not the magnetic tapes or the punch cards.[121]

Transfer of tangible personal property under these circumstances is merely incidental to the purchase of the intangible knowledge and information stored on the tapes.[122]

The year after Commerce Union Bank v. Tidwell was decided in Tennessee, the Alabama Supreme Court reached a similar conclusion in a case having a similar fact pattern. In State of Alabama v. Central Computer Services, Inc.,[123] (see Case No. 37, Appendix C) Central Computer Services, Inc. licensed certain software programs for a 99 year term. Upon receipt of the software, Central extracted the information contained on the magnetic tapes and punched cards, and transferred the programs to magnetic discs. The tapes were then returned to the lessor and the cards were thrown away. The Alabama State Department of Revenue assessed a use tax of $13,519.91 against Central for its purchase of the programs. Central alleged the programs were intangible property and therefore not subject to the use tax.

In holding for Central, the court ruled that what was purchased by Central was the information or knowledge which went into the development of the eight programs and not the magnetic tapes and punched cards themselves. The magnetic tapes and punched cards were merely the means by which this information or knowledge was transferred.

The State contended that the magnetic tapes and punched cards are a necessary, integral part of the computer program and that because these items are tangible, there was a purchase of taxable tangible personal property by Central.

In its argument, the State cited Boswell v. Paramount Television Sales, Inc.[124] (See Case No. 4, Appendix C.) In that case, the court held that the leasing of movie films and tapes by Paramount to television stations in Alabama involved the leasing of tangible personal property rather than an intangible right to publish as Paramount argued.

The court in Central distinguished the magnetic tapes and punched cards from the movie films. In Boswell, the court noted that the right to publish or broadcast the motion picture was physically inseparable from the movie film itself. The physical presence of the movie film is essential to broadcasting the intangible artistic efforts of the actors.

However, in Central, the physical presence of magnetic tapes and punched cards is not essential to the transmittal of the desired information from its creator to Central. This information can also be telephoned to the computer or brought into Alabama in the mind of an employee of the lessor.

In its summary, the court said that:

> "...we find in the present case that there is an incidental physical commingling of the intangible information sought by Central Computer Services and the tangible magnetic tapes and punched cards themselves. We therefore hold that the essence of this transaction was the purchase of nontaxable intangible information."[125]

Texas, which first addressed the software tax issue in 1977 in Bullock v. Statistical Tabulating Corp.,[126] addressed the issue a second time in 1979 in First National Bank of Fort Worth v. Bullock.[127] (See Case No. 21, Appendix C.) In the 1979 case, the bank purchased several standardized or "canned" programs which enabled its computer to perform deposit and lending functions and process general accounting. The software was contained on magnetic tapes, but the information could have been transmitted by keypunch cards, telephone or various other methods.

The Texas law places a tax on a sale of tangible personal property. Tangible personal property is defined as "personal property which may be seen, weighed, measured, felt or touched, or which is in any other manner perceptible to the senses."[128] To determine whether a sale is of

tangible or intangible property, the courts apply the "essence of the transaction" test.[129] If the object or essence of the sale is intangible property, then the transaction is not taxable. An important factor to be considered in arriving at this determination is the fact that the desired information could have been transferred in several different ways.[130]

In Statistical Tabulating, the court held that processed data contained in a coded computer card was an intangible and not taxable. In Williams and Lee Scouting, statistical data on oil and gas well production was compiled and mailed to subscribers in printed reports each week. The sale was not taxed. The purchasers in both Williams and Lee Scouting and Statistical Tabulating were desirous of something beyond the tangible object involved in the transaction. Unlike a phonograph record or filmstrip when the information on the tape, in the present case, is transferred to the computer, the tape is no longer of any value or importance to the user.[131]

Bullock contended that this case is distinguishable from Statistical Tabulating in that the software in the latter case was "customized," because it was developed specially for the purchaser. The tapes in the present case are "canned" programs, since they are standard items sold to

numerous customers with only slight modifications to conform to each purchaser's use. The service characteristic is present only with "customized" programs, according to Bullock.

The court did not agree with Bullock's argument that only "customized" programs should be exempt from the sales tax. The test in each case is not whether the product is "customized" or "canned," but whether the object of the sale is tangible personal property.[132] In Williams and Lee Scouting, the weekly report of oil and gas data was a "canned" publication in that the same information was mailed to many subscribers.

The Texas court held that the programs in question were intangible and not subject to the sales tax.

Two years after the First National Bank of Fort Worth v. Bullock was decided in Texas, the Illinois Supreme Court heard a similar case and reached the same conclusion as the Texas court. In First National Bank of Springfield v. Department of Revenue,[133] (see Case No. 22, Appendix C) the issue was whether the sale of applicational programs (as opposed to operational programs) constitutes the sale of tangible personal property subject to the Illinois use tax, where the data is contained on magnetic tape. As was the case in Fort Worth, the bank in Springfield purchased com-

puter programs that were delivered on magnetic tape, although other means of delivery were also possible.

Upon delivery, the information was removed from the tapes and stored elsewhere, at which point the tapes could either be used again or discarded.

The bank contended that the magnetic tapes in question here constituted intangible personal property, because they were, in essence, merely a means of conveying programming instructions and that software primarily represents intangible services and not tangible goods. The Department, on the contrary, contended that the physical qualities of the tapes predominate over the information contained on them. The Department compared the tapes to films, phonograph records and books. All three examples, the Department argued, represent the physical manifestation of intangible ideas and artistic achievement, yet all three are taxable as tangible personal property.[134]

The Illinois court held that the software in question was intangible. The Illinois court previously held that where a service of skill was rendered in the manufacture of a special milling machine for the particular and exclusive use of a purchaser, the sale of the product was not taxable where it was merely incidental to the service.[135] The

instant case is of a similar vein. The plaintiff bank purchased, in substance, the means of programming its computer so that it could perform functions the bank needed to have performed. The bank did not desire to spend the money or time to formulate the programs through its own data processing staff. Therefore, it purchased instruction programs from other sources. It simply happened that, for the sake of convenience and easy handling, the programs were recorded on magnetic tapes. The tapes were certainly not the only medium through which the information could be transferred. In this way, the tapes differ from a movie film, a phonograph record or a book, whereby the media used are the only practicable ways of preserving those articles.

Thus, while those articles and the tapes are similar in that they physically represent the transfer of ideas or artistic processes, a more significant distinction is that those articles are inseparable from the ideas or processes, whereas computer programs are separable from the tapes. Not only may software information be conveyed any number of ways, but it may even be copied off of the tapes and stored, using another medium. In short, it is not the tapes which are the substance of the transaction, it is the information.[136]

The court held that the sale of computer software in this instance is, in substance, the transfer of intangible personal property and, as such, is not taxable under the Illinois Use Tax Act.[137]

Soon after the First National Bank of Springfield case was decided in Illinois, a case having a similar fact pattern was heard across the border in Missouri. In James v. TRES Computer Service, Inc.,[138] (see Case No. 28, Appendix C) the issue was whether the sale of "canned" software is a taxable event. In holding software to be intangible and not subject to the Missouri use tax, the court based its decision on the decisions reached in Alabama, Tennessee, Texas, Illinois, the District of Columbia, and Wisconsin.[139]

## 1983--A TURNING POINT OR AN ABERRATION?

A long line of cases in a number of states, going back as far as 1972, have ruled almost uniformly that software is intangible for state sales, use and property tax purposes. The "knowledge" rationale has been used, as have the "essence of the transaction" and several other tests. Software has been compared to and distinguished from films, records and books, all of which have been held to be tangible.

In 1983, two court cases decided one day apart, have flown in the face of this long line of precedent. In Comptroller of the Treasury v. Equitable Trust Company,[140] (see Case No. 12, Appendix C) the issue was whether the purchase of a "canned" or "off the shelf" program on magnetic tape constitutes a transaction upon which sales tax can be assessed.

Equitable entered into several license agreements whereby it obtained the nontransferable and nonexclusive right to use several programs in perpetuity. Legal title remained with the licensor.

The Comptroller alleged that these transactions constitute transactions involving tangible personal property, namely, magnetic tapes which had been enhanced in value by the copies of the programs coded thereon, and are subject to sales tax. In its amicus brief, the Data Processing Management Association (DPMA) contended that the transactions were licenses to use the programs, and that such licenses are a form of intangible property. Equitable contended that the predominant purpose or essence of the transaction governs classification of the sale as involving either tangible or intangible property. In the transfer of computer programs via magnetic tape, the purpose is to obtain the program, an intangible, and not the tangible

tape. In taking this position, Equitable is supported by the overwhelming numerical majority of reported cases applying tax statutes restricted to tangible personal property.

In holding for the Comptroller, the court held that Equitable acquired tangible personal property, namely, magnetic tapes which had been enhanced in value by the copies of the programs coded thereon. The licenses do not grant intangible rights from the proprietors to Equitable, but simply erect contractual limitations on the use which Equitable might otherwise make of the statutorily unprotected program copies it acquired.[141]

Equitable's principal argument is that the court should conceptually sever the program copy contained on the magnetic tape from the tangible tape itself. The argument is that the transaction should be viewed as operating on two levels, one the transfer of intangible knowledge or information and, the other, the delivery of a tangible tape. To have a scalpel for this legal surgery, it would be necessary to adopt as part of Maryland sales tax law a principle that the buyer's predominant purpose for a transaction controls the classification of the acquisition as either tangible or intangible.

Quotron Systems v. Comptroller,[142] (see Case No. 33, Appendix C) recognized a predomi-nant purpose test as one of several factors in determining use tax applicability to the type of transaction presented there. That taxpayer undertook concurrently to render two types of interrelated performances. One was to maintain and continuously to update a computerized data bank of economic information, such as the selling prices of securities, which its customers could randomly access through remote terminals. The other was to install Quotron-owned hardware, including the remote terminals, on customers' premises for their use in requesting and receiving electronic transmissions of the economic data. In Quotron, the court held that the first analytical step was to characterize the performance as a single, overall function, either rental of equipment or the provision of services.[143] The dominant purpose was to obtain services and not to rent hardware. Based on that factor, on the taxpayer's retention of control over the hardware, and on the fact that Quotron's hardware could not be obtained without subscribing to the service, the court concluded that the transaction was the provision of services.[144] This approach is quite similar to that which the court used to determine whether a contract of sale is one for goods or for services under Article 2 of the Uniform Commercial Code, where the performance involves both.[145]

The rule of Quotron has been implicitly applied in Equitable on an aspect which is not disputed by Equitable. In addition to providing program copies on tape, each licensor agreed to furnish certain installation services. One licensor also contracted to furnish a limited amount of training within the fixed contract price.

The "dominant purpose" test of whether the property in question is being purchased for its own sake or for the (intangible) information contained therein can also be applied, by analogy, to books, motion picture films, video display discs, phonorecords and music tapes. In sales of these items, the purchaser's dominant purpose ordinarily is to obtain the knowledge, information or data thereby conveyed. While the book is in human readable form, the other media are machine readable. A purchase of any of these information conveying media is within the imposition of the sales tax as tangible personal property. Such transactions escape taxation only if there is an applicable statutory exclusion or exemption. These analogies, however, have been argued to other courts which have held that tape copies of programs are intangible.

The court in Equitable rejected the reasoning of the long line of cases that hold taped copies to be intangible because of alleged misconceptions in the technological

underpinnings of these decisions, and because of the apparent departures in reasoning from that usually applied in sales tax cases. Secondly, there was a substantial question whether the decision that set the course for the line of program cases, District of Columbia v. Universal Computer Associates, Inc.,[146] is consistent with Maryland law.

Furthermore, a tape containing a copy of a canned program does not lose its tangible character, because its content is a reproduction of the product of intellectual effort, just as the phonorecord does not become intangible, because it is a reproduction of the product of artistic effort. The price paid for a copy of a canned program reflects the cost of developing the program which the proprietor hopes to recover, with profit, by spreading the cost among its customers. Simply because the canned program on tape is much more expensive than the typical phonorecord, the program tape is not any less tangible.

The court stated that Equitable's intangibility argument would have merit if the direct input by keyboard, without documentation, alternative (a service transaction) or the electronic transmission, without documentation, alternative (no tangible carrier) is the form of transaction under consideration. But, because a taxable transaction might have

been structured in a nontaxable form, it does not thereby become nontaxable.[147]

Finally, Equitable argues that a purchased program "can be and was in fact severed and exists apart from the tangible transfer medium...." However, the copy delivered to Equitable does not become severed in any physical sense from the tape when the tape is used to structure computer memory.

The Equitable court did not discern any legally significant difference for sales tax purposes between the canned computer program on magnetic tape and music on a phonograph record. As stated in the National Commission on New Technological Uses of Copyrighted Works, Final Report at 10 (1978): "Both recorded music and computer programs are sets of information in a form which, when passed over a magnetized head, cause minute currents to flow in such a way that desired physical work is accomplished." In the case of the phonograph record, the sales tax statute in Maryland has never been viewed as conceptually severing the copy of the performance from the tangible carrier. The court concluded that the statute does not sever copies of computer programs from the tangible carriers employed in the subject sales.

The day after the Equitable case was decided in Maryland, the Vermont court issued its ruling on Chittenden Trust Company v. King.[148] (See Case No. 9, Appendix C.) In this case, the Department of Taxes (Department) assessed a compensating use tax of $471 against the Chittenden Trust Company (Bank) for the purchase of a "canned" software tape valued at $15,700. The Department classified the tape as tangible personal property, subject to taxation. The Bank contended the tape was intangible and therefore exempt from the tax.

The Bank purchased the program in the form of a magnetic tape. The programming information could have been carried using several other means, including punch cards, telephone lines and personal programming. The fifteen to twenty "man-years" needed to develop the "off the shelf" program accounts for almost its total value, since a blank magnetic tape may be purchased for approximately $15. Once the information is transferred into the computer's memory, the tape is of negligible value to the Bank, and may be reused, destroyed or returned to its original distributor.

The court held for the Department. The computer tape was held to be tangible personal property and its sale is subject to taxation. In 32 V.S.A. Sec. 970(7), tangible personal property is defined as:

"...personal property which may be seen, weighed, measured, felt, touched or in any other manner perceived by the senses and shall include fuel and electricity, but shall not include rights and credits, insurance policies, bills of exchange, stocks and bonds and similar evidences of indebtedness or ownership."

In holding that the computer tape was tangible personal property, the court noted that the tape could be seen, weighed, measured and touched, and is not a right or credit. The court rejected the Bank's contention that the "focus of the transaction" was the transfer of intangible knowledge and information, rather than the tangible magnetic tape, because the purchase of an "off the shelf" program does not involve the sale of personal services, but rather the sale of tangible personal property.

The court also rejected the Bank's attempts to distinguish a computer program tape from other taxable personal property such as films, videotapes, books, cassettes and records. The reasoning was that in each, their value lies in their respective abilities to store and later display or transmit their contents, and a computer software tape is no different.

In the final page of its decision, the court stated that:

> "It may well be that the Bank could have procured, by way of telephone or personal service, the same programming information so as to avoid a use tax. To base the tax consequences of a transaction on how it could have been structured 'would require rejection of the established tax principle that a transaction is to be given its tax effect in accordance with what actually occurred and not in accordance with what might have occurred.' Commissioner v. National Alfalfa Dehydrating & Milling Co., 417 U.S. 134, 148 (1974). This we will not do. The Bank must accept the consequences of its choice to purchase the program in the form of a tape."

In Citizens and Southern Systems (C & S), the issue was whether a sale of computer software is a sale of "tangible personal property" as defined in S.C. Code Ann. Sec. 12-35-140 (1976) and, therefore, subject to the State's sales and use tax. C & S paid a tax of $2,376 under protest, and brought an action for recovery, arguing that the software in question was intangible and, therefore, not subject to tax.

The South Carolina Code (Sec. 12-35-140) defines tangible personal property as "personal property which may be seen, weighed, measured, felt or touched or which is in any other manner perceptible to the senses, except notes, bonds, mortgages or other evidences of debt and stocks and shall include rooms, lodgings or accommodations furnished to transients for a consideration." The trial judge held that the magnetic tape containing the information in question could be seen, weighed, measured, felt, and touched and therefore, came within the definition of tangible personal property.

The judge compared the sale of magnetic tapes to a sale of books or phonograph records, observing that the conveyance of knowledge by a professor to students in a classroom would not be subject to tax, but publication in the form of a book or phonograph record would be taxable. In assessing the tax, the value of the books or records is based upon the value of what is contained in them, which is intangible. The value of the paper, binding, ink or other material cost is not relevant.

Appellants relied on the long line of cases that distinguished software from books, records and movies because of the separability of the computer program from the magnetic tape and the inherent inseparability of the matter contained

in a book, on a record, or in a movie from the book, record or movie.

The South Carolina Court agreed with the decision in Equitable Trust, which stated, "The taxability of a sale of a canned program copy should not turn on whether the buyer stores the program in memory. A tax system cannot be administered dependent upon whether or not, at the time of the transaction, the buyer's intent is to store the program continuously in memory." (464 A.2d 248, 255 (1983)) The South Carolina Court did not think that the taxability of a sale of computer software depends upon the separability of the program from the tape.

Citizens asserted that the instructions could have been introduced into the computer through intangible means such as by telephone or personal programming, and that the fact that transmission was by magnetic tape should not make the transaction taxable. On this point, the South Carolina Court relied on Chittenden, which held that the bank had to accept the consequences of its choice to purchase the computer program in the form of a magnetic tape, finding that "...to base the tax consequences of a transaction on how it could have been structured 'would require rejection of the established tax principle that a transaction is to be given its tax effect in accord with what actually occurred and not

in accord with what might have occurred.' (Citation omitted" (465 A.2d 1100, 1102 (1983).)

## CONCLUSION

It will take some time to determine whether the decisions in Equitable, Chittenden, and Citizens are aberrations or the beginning of a trend. Many state legislatures have statutes that classify canned and custom software either as tangible or intangible, but several states have not yet addressed the tangibility issue as it relates to software. As technology advances, some states may re-examine their position on software, and some decisions may be influenced by Equitable, Chittenden and Citizens.

With all the conflicting and inconsistent definitions of software being offered by various private groups, federal agencies, State legislatures, and a multitude of courts, it is no wonder that the issue of software has become so complex. And, it appears that the conflict involving software will not be resolved at any time in the near future. As technology continues to evolve, the very nature of software will also change.

Thinking through the theoretical arguments to arrive at a finely-reasoned solution to the question of whether software is tangible or intangible is a useless exercise, espec-

ially at the federal level. Whether software qualifies for the investment tax credit (which may soon be eliminated anyway, if the recently issued Treasury proposal is adopted) is something that will be decided by Congress, and its decision will not revolve in the slightest around the tangibility issue. The decision will be based on whether a tax incentive should be provided for creators of software, or whether providing such a tax incentive would be perceived by the voting masses as a tax loophole through which much tax revenue would escape.

Whether the creationof computer software should qualify for the research credit will be resolved in the same manner. Certain categories of expenditure qualify for the research credit and others do not. Whether a certain expenditure qualifies or not depends on whether Congress, in its omniscience, deems that a tax incentive should be provided for the expenditure. Items are included on the list of eligible expenditures based on the influence of special interest groups and the projected public reaction to the inclusion of such expenditures. The Proposed Regulations on the research credit were withdrawn in response to the vehement opposition of the software industry, and it is the author's opinion, based on conversations with the people at the Treasury Department who are re-writing the Regulations, that no new

regulations will be issued prior to the 1986 elections. The research credit was due to expire at the end of 1984, and it was extended temporarily. Whether it will be extended again or whether it will be totally eliminated depends on what provisions are included in the final version of the President's tax bill, which may not be passed until 1986, and which will certainly undergo substantial changes from the bill he proposed as this thesis is being written. Whether the research credit will be extended, altered or eliminated depends exclusively on political considerations and not on theoretically justifiable arguments.

At the State level, logical reasoning plays somewhat more of a role, at least in cases where the taxability of software is resolved by the court and not the legislature.[149] In cases where software is delivered over telephone wires in the form of electrical impulses, it seems logical to classify software as intangible, and the courts have classified electrical impulses as intangible (see Helvey, Case No. 25, Appendix C). Other courts have alluded to the telephone transmission possibility and have also stated that such a delivery, if made, would not be a taxable event. On the other hand, software delivered in the form a disk or tape or other tangible container could reasonably be deemed to be tangible, just as a book, which is delivered in the form of

bound sheets of paper, is uniformly classified as tangible for sales, use and property tax purposes.

The state courts are not immune from political pressure, however. Judges realize that state government is under intense pressure to raise revenue in order to pay for a myriad of services, and it is not uncommon for a state court to render its decision based on whether the decision will result in an increase in the amount of tax revenue that finds its way into the state coffer. A variety of conflicting pressures are brought to bear in deciding such cases. On the one hand, the State Revenue Department may argue that failure to classify software as tangible property will result in the loss of hundreds of millions in tax revenue over the next few years, while, at the same time, the Chamber of Commerce is arguing that taxing software sales will force software manufacturers out of the state, and will cause them to relocate to states that treat software manufacture more favorably taxwise. According to a recent news report on American television, one of the major reasons why Japanese businessmen are moving their high technology companies out of California and into Washington State and Vancouver, British Columbia, Canada, is because of the more favorable tax climate offered in these locations.

Debating the tangibility of software for tax purposes, while a good intellectual exercise, is only an exercise. While the delivery of software over telephone wires is generally considered to be the delivery of intangible property, and therefore exempt from tax, and delivery in the form of a disk or tape may appear to be the delivery of tangible property (the courts have not always agreed with this interpretation), in the end, the classification of software as tangible or intangible property will depend on a variety of factors that are outside the realm of logic.

## FOOTNOTES

[1]See Scott R. Schmedel, "IBM Discloses Plan for Separating Its Computer and Services Prices," Wall Street Journal, June 24, 1969, 38; Goetz, "When IBM Unbundled," Computerworld, December 31, 1979/January 7, 1980, 35; Martin A. Goetz, "Unbundling: Will 80's Repeat the 60's?", Computerworld, April 14, 1980, 33.

[2]John G. Martin, "The Revolt Against the Property Tax on Software: An Unnecessary Conflict Growing Out of Unbundling," 9 Suffolk University Law Review, Fall, 1974, 124.

[3]"Software and Sales Taxes: The Illusory Intangible," 63 B.U.L. Rev., 181 (1983); Matthew A. Case, "Sales and Use Tax of Computer Software--Is Software Tangible Personal Property," 27 Wayne Law Review, Summer, 1981, 1503-1536; Robert D. Crockett, "Software Taxation: A Critical Reevaluation of the Notion of Intangibility," Brigham Young University Law Review, 1980, 859-879; John W. Bryant and Lance R. Mather, "Property Taxation of Computer Software," 18 New York Law Forum, Summer, 1972, 59-75, reprinted in The Monthly Digest of Tax Articles, March, 1973, 31-40; "Computer Programs as Goods Under the U.C.C.," 77 Michigan Law Review, April, 1979, 1149-1165; Arthur R. Rosen, "Computer Software Classed as Intangible Property is Exempt from State Property Taxes," The Journal of Taxation, February, 1983, 114-116; Michael Vanecek and Debra White, "Software and Taxation: Beware," Journal of Systems Management, February, 1982, 6-10; Karl K. Heinzman, "Computer Software: Should It Be Taxed As Tangible Personal Property?," Assessors Journal, October, 1971, 59-64; Karl K. Heinzman, "Computer Software: Should It Be Treated as Tangible Property For Ad Valorem Tax?," The Journal of Taxation, September, 1972, 184-186.

[4]See Ronald J. Palenski, Sales and Use Tax Status of Computer Programs by State, (Arlington, VA: ADAPSO, 1983). Prewritten programs, also called "canned" or "off the shelf" programs, are standardized programs that are sold to many buyers "as is," without alteration. Examples include game cartridges as well as many payroll and accounts receivable programs, etc. Custom programs are individually tailored to meet the needs of an individual customer.

[5]See Daniel A. Beucke, "Custom Software Firms Exempted From State Sales Tax," San Jose Mercury, September 23, 1982; Rory J. O'Connor, "California Bill Seeks to End 'Software Tax'," Computer Business News, September 13, 1982; Michael Vanecek and Debra White, "Software and Taxation: Beware," Journal of Systems Management, February, 1982, 6-10; Debra M. White and Michael T. Vanecek, "Taxpayer Beware! The Current State of Computer Software Taxation," Taxes, May, 1982, 373-377; Edith D. Myers, "Data Processing and Taxes," Datamation, May, 1977, 155-160; Steven A. Vajda, "Software Sales Tax Issue May Ignite DP," Data Management, February, 1979, 40-41; Robert Sherin, "Current Status of Software Tax Issue," Data Management, January, 1978, 110-113; Robert Sherin, "Software Taxes: Let's Tip the Scale Back to Common Sense," Data Management, September, 1977, 34-36; Herbert B. Safford, "Perspective/Software Taxation," Data Management, March, 1973, 36, 33; L. Valigra, "Software Tax To Be Tested in California Courts," Mini-Micro Systems, September 18, 1981, 36, 43; Edith D. Myers, "Taxes: Spotlight on California," Datamation, January, 1978, 201-203; Edith D. Myers, "'We'll Pack the Room,' Says STAG," Datamation, February, 1978, 183-184; J. Crawford Turner, Jr., "Taxes and Software," Data Management, October, 1980, 58; Franklin L. Green, "Infosystems, the Law and Taxes...What's Fair," Infosystems, February, 1973, 30, 72; Larry A. Welke, "Infosystems, the Law and Taxes...Fair Avoidance," Infosystems, February, 1973, 31, 62, 76; Robert M. Sherin, "Are Software Taxes Inevitable?," Datamation, September, 1978, Reader Opinion Forum; "Should Software Be Taxed?," ICP Insiders' Letter, February, 1982, 1; Don Leavitt, "To Tax or Not to Tax: The Software Question," Computerworld, January 28, 1980, SR15, SR22; Nancy French, "Florida Kills Tax on Software, Rules DP Programs 'Intangible'," Computerworld, January 17, 1977, 1-2; Nancy French, "Vermont Excludes DP Services From Sales Tax," Computerworld, September 5, 1977, 11; Robert M. Sherin, "Tennessee Law Taxing Software Violates the Division of Powers," Computerworld, May 9, 1977, 19; Roy N. Freed, "It's Not Too Late To Salvage Software Tax Situation," Computerworld, May 9, 1977, 18; Roy N. Freed, "A Legal Perspective on Sales Taxation of Software Programs," Taxes, September, 1982, 696-699.

[6]"Goods" is defined in U.C.C. Section 2-105.

[7]See "Software Industry Analysis" in Computer Yearbook 98 (1972).

[8]See C. Sippl and C. Sippl, Computer Dictionary and Handbook 202 (2d edition 1972).

[9]Ibid., p. 407.

[10]Werner L. Frank, The New Software Economics 7 (1979).

[11]Rev. Proc. 69-21, 1969-2 C.B. 303. The full text of this and other IRS pronouncements can be found in Appendix F.

[12]American National Dictionary for Information Processing, American Standards Committee X3 Technical Report 1-77.

[13]Federal Information Processing Standards Publication 11-1, September 30, 1977.

[14]Commerce Union Bank v. Tidwell, 538 S.W.2d 405, 406 (Tenn. 1976); See also, Greyhound Computer Corp. v. State Department of Assessments and Taxation, 271 Md. 674, 320 A.2d 52 (1974). Summaries of relevant court cases can be found in Appendix C.

[15]John W. Bryant and Lance R. Mather, "Property Taxation of Computer Software," 18 New York Law Forum, 59, 62 (1972).

[16]Commerce Union Bank v. Tidwell.

[17]See California Revenue and Tax Code Sections 995, 995.1, 995.2 (West Supp. 1980). This provision taxes systems programs only.

[18]Anthony G. Ferraro, "Software: A Practical Appraisal Viewpoint," Assessors Journal, October, 1971, p. 65.

[19]Karl K. Heinzman, "Computer Software: Should It Be Taxed As Tangible Personal Property?," Assessors Journal, October, 1971, p. 59.

[20]N.J. Ad. Code R. 18: 24-25.1, 2 (1980); Cal. Ad. Code R. 1502(F) (1981).

[21]FASB Interpretation No. 6: "Applicability of FASB Statement No. 2 to Computer Software: An Interpretation of FASB Statement No. 2," (Stamford: FASB, 1975). See Part I of this treatise for a full discussion of the financial accounting aspects of software.

[22]FASB Technical Bulletin No. 79-2: "Computer Software Costs," (Stamford: FASB, 1979).

[23]Opler has defined firmware as "microprograms resident in the computer's control memory." ("Fourth-Generation Software," Datamation, January, 1967, p. 22.) Others classify firmware as a portion of systems hardware (J. Adams and D. Haden, Computers: Appreciation, Applications, Implications, p. 260 [1973]).

[24]465 F.2d 615 (D.C. Cir. 1972).

[25]Commerce Union Bank v. Tidwell.

[26]538 S.W.2d 405 at 408.

[27]First National Bank of Fort Worth v. Bullock, 584 S.W.2d 548 (Tex. Civ. App. 1979).

[28]District of Columbia v. Universal Computer Associates, 465 F.2d 615 (D.C. Cir. 1972) and Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976) both employed this rationale.

[29]See District of Columbia v. Universal Computer Associates; Commerce Union Bank v. Tidwell; First National Bank of Fort Worth v. Bullock; and State of Alabama v. Central Computer Services, Inc., 349 So.2d 1160 (Ala. 1977).

[30]In the course of the interviews conducted in connection with this research project it was discovered that some corporations use this mode of transmission in order to avoid paying the sales tax. See Appendix E for the DPMA position on software taxation.

[31]Whether an otherwise taxable event becomes nontaxable by use of this mode of transmission depends on State law. Some states would treat such transactions as legal tax avoidance, whereas other states might regard it as illegal tax evasion if the tax is not paid on the transfer.

[32]See Chittenden Trust Company v. King, 465 A.2d 1100 (Vt., 1983); Commerce Union Bank v. Tidwell; Comptroller of the Treasury v. Equitable Trust Company, 464 A.2d 248 (Md., 1983); First National Bank of Springfield v. Department of Revenue, 85 Ill.2d 84, 421 N.E.2d 175 (1981); Greyhound Computer Corporation v. State Department of Assessments and Taxation, 320 A.2d 52 (Md. App. 1974), 271 Md. 674 (1974); James v. TRES Computer Service, Inc., 642 S.W.2d 347 (Mo. 1982); State of Alabama v. Central Computer Services, Inc.

For cases involving the tangibility of films and records for sales, use and property tax purposes, see Recording Devices v. Bowers, 174 Ohio St. 518, 190 N.E.2d 258 (1963); Recording Devices v. Porterfield, 30 Ohio St.2d 208, 283 N.E.2d 626 (1972); Michael Todd Co. v. County of Los Angeles, 57 Cal.2d 684, 21 Cal. Rptr. 604, 371 P.2d 340 (1962); University Microfilms v. Scio Township, 76 Mich. App. 616, 257 N.W.2d 265 (1977), leave to appeal denied, 402 Mich. 880 (1978); Boswell v. Paramount Television Sales, Inc., 291 Ala. 490, 282 So.2d 892 (1973); Crescent Amusement Co. v. Carson, 187 Tenn. 112, 213 S.W.2d 27 (1948); United Artists Corp. v. Taylor, 273 N.Y. 334, 7 N.E.2d 254 (1937); Saenger Realty Corp. v. Grosjean, 194 La. 470, 193 So. 710; Burgess Co. v. Ames, 359 Ill. 427, 194 N.E. 565; District of Columbia v. Norwood Studios, Inc., 336 F.2d 746 (D.C. Cir. 1964); Simplicity Pattern Company, Inc. v. State Board of Equalization, 101 Cal. App.3d 184, 161 Cal. Rptr. 558 (1980).

For cases involving tangibility for investment tax credit purposes, see Walt Disney Productions v. United States (Disney I), 327 F.Supp. 189 (C.D. Cal. 1971), aff'd. as modified, 480 F.2d 66 (9th Cir. 1973), 32 AFTR2d 73-5094, cert. denied, 415 U.S. 934, 94 S.Ct. 1451, 39 L.Ed. 493 (1974); Walt Disney Productions v. United States (Disney III), 549 F.2d 576 (9th Cir. 1977), 39 AFTR2d 77-796; Texas Instruments, Inc. v. United States, 551 F.2d 599, 39 AFTR2d 77-1383 (5th Cir. 1977); Bing Crosby Productions, Inc. v. United States, 588 F.2d 1293 (9th Cir. 1979), 79-1 USTC 9150; Sussex Pictures, Inc. v. United States, 588 F.2d 1293 (9th Cir. 1979), 79-1 USTC 9150; and MCA, Inc. and Universal City Studios, Inc. v. United States, 588 F.2d 1293 (9th Cir. 1979), 79-1 USTC 9150.

For a case involving tangibility of computer software for collapsible corporation purposes, see Computer Sciences Corporation v. Commissioner of Internal Revenue, 63 T.C. 327 (1974). (See Case No. 13, Appendix C.)

[33]Films, records and books are generally treated as tangible property for sales tax purposes.

[34]See Karl K. Heinzman, "Computer Software: Should It Be Treated As Tangible Property For Ad Valorem Tax?" The Journal of Taxation, September, 1972, 185; John W. Bryant and Lance R. Mather, "Property Taxation of Computer Software." 18 New York Law Forum, Summer, 1972, 74; Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976), at 407-408; Statement of the Business Equipment Manufacturers Associaton (BEMA) to the State of California - State

Board of Equalization In re: Proposed Rule 32 (January 18, 1972); John W. Bryant and Lance R. Mather, "Property Taxation of Computer Software," The Monthly Digest of Tax Articles, March, 1973, 31-40; Karl K. Heinzman, "Computer Software: Should It Be Taxed As Tangible Personal Property?" Assessors Journal, October, 1971, 59-64; Matthew A. Case, "Sales and Use Tax of Computer Software - Is Software Tangible Personal Property?" 27 Wayne Law Review, Summer, 1981 at 1516.

[35]See District of Columbia v. Universal Computer Associates, Inc. and Commerce Union Bank v. Tidwell.

[36]538 S.W.2d 405 at 408. This analogy assumes that the program, once run, is stored in the computer's memory.

[37]See Alabama v. Central Computer Services, Inc., 349 So.2d 1160 at 1162 (Ala. 1977); Commerce Union Bank v. Tidwell, 538 S.W.2d 405 at 408 (Tenn. 1976). In University Microfilms v. Scio Township, 76 Mich. App. 616, 257 N.W.2d 265 (1977), leave to appeal denied, 402 Mich. 880 (1978), the court distinguished software from master microfilm negatives, noting that "[t]he value of plaintiff's master negatives is in the printed word itself." (See Case No. 41, Appendix C.)

[38]See Matthew A. Case, "Sales and Use Tax of Computer Software - Is Software Tangible Personal Property?" 27 Wayne Law Review, Summer, 1981, 1518.

[39]John W. Bryant and Lance R. Mather, "Property Taxation of Computer Software," 18 New York Law Forum, Summer 1972 at 74. An abbreviated version of this article was reprinted in The Monthly Digest of Tax Articles, March, 1973, 31-40.

[40]See Accountants Computer Services, Inc. v. Kosydar, Central Data Systems, Inc. v. Kosydar, and The Andrew Jergens Co. v. Kosydar, all reported at 35 Ohio St.2d 120, 298 N.E.2d 519 (1973); Bullock v. Statistical Tabulating Corp., 549 S.W.2d 166 (Texas 1977); Janesville Data Center, Inc. v. Wisconsin Department of Revenue, 84 Wis.2d 341, 267 N.W.2d 656 (1978); Nova Computing Services, Inc. v. Askew, Florida Division of Administrative Hearings, No. 76-1475 (1976); Citizens Financial Corp. v. Kosydar, 43 Ohio St.2d 148, 331 N.E.2d 435 (1975); Credit Bureau of Miami County, Inc. v. Collins, 50 Ohio St.2d 270, 364 N.E.2d 27 (1977); Intellidata, Inc. v. State Board of Equalization, 139 Cal. App.3d 594, 188 Cal. Rptr. 850 (1983); Miami Citizens National Bank v. Lindley, 50 Ohio St.2d 249, 364 N.E.2d 25 (1977).

[41]The Uniform Commercial Code distinguishes the sale of "goods" from the sale of services. For UCC cases that have been cited in cases addressing the issue of software taxation, see Helvey v. Wabash County REMC, 151 Ind. App. 176, 278 N.E.2d 608 (1972); Carl Beasley Ford, Inc. v. Burroughs Corporation, 361 F.Supp. 325 (E.D. Pa. 1973), aff'd. 493 F.2d 1400 (3d Cir. 1974); F & M Schaefer Corp. v. Electronic Data Systems Corp., 430 F.Supp. 988 (S.D. N.Y. 1977), aff'd. mem. 614 F.2d 1286 (2d Cir. 1979); Triangle Underwriters, Inc. v. Honeywell, Inc., 457 F.Supp. 765 (E.D. N.Y. 1978), rev'd. on other grounds, 604 F.2d 737 (2d Cir. 1979).

[42]For cases involving the sale of mailing lists, see Fingerhut Products Company v. Commissioner of Revenue, 258 N.W.2d 606 (Minn. 1977); Spencer Gifts, Inc. v. Director, Division of Taxation, 182 N.J. Super. 179, 440 A.2d 104 (N.J. Tax Ct. 1981); Mertz v. State Tax Commission, 89 A.D.2d 396, 456 N.Y.S.2d 501 (1982). For cases involving the sale of stock exchange information, see Dun & Bradstreet v. City of New York, 276 N.Y. 198, 11 N.E.2d 728 (1937); Bunker-Ramo Corp. v. Porterfield, 21 Ohio St.2d 231, 257 N.E.2d 365 (1970); Quotron Systems v. Comptroller, 287 Md. 178, 411 A.2d 439 (1980). Other cases addressing the product v. service issue are Washington Times-Herald v. District of Columbia, 94 U.S. App. D.C. 154, 213 F.2d 23 (1954) (artwork); Southern Bell Telephone and Telegraph Company v. Department of Revenue, 366 So.2d 30 (Fla. Dist. Ct. App. 1978) (artwork); General Data Corp. v. Porterfield, 21 Ohio St.2d 233, 257 N.E.2d 359 (1970) (hotel reservation information); Credit Bureau of Miami County, Inc. v. Collins, 50 Ohio St.2d 270, 364 N.E.2d 27 (1977) (credit information).

[43]Howitt v. Street & Smith Publications, Inc., 276 N.Y. 345, 12 N.E.2d 435 (1938); Bigsby v. Johnson, 99 P.2d 268 (1940), rev'd. on a different issue, 18 Cal.2d 860, 118 P.2d 289 (1941). See also Matthew A. Case, "Sales and Use Tax of Computer Software - Is Software Tangible Personal Property?," 27 Wayne Law Review, Summer, 1981, 1520.

[44]Berry-Kofron Dental Lab. Co. v. Smith, 345 Mo. 922, 137 S.W.2d 452 (1940); Mahon v. Nudelman, 377 Ill. 331, 36 N.E.2d 550 (1941); Community Telecasting Service v. Johnson, 220 A.2d 500 (Me. 1966); District of Columbia v. Universal Computer Associates, Inc., 465 F.2d 615 (D.C. Cir. 1972); Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976).

[45] United Aircraft Corp. v. O'Connor, 141 Conn. 530, 107 A.2d 398 (1954); Bucyrus-Erie Co. v. Lorenz, 26 Ill.2d 183, 186 N.E.2d 250 (1962); University Microfilms v. Scio Township, 76 Mich. App. 616, 257 N.W.2d 265 (1977), leave to appeal denied, 402 Mich. 880 (1978).

[46] 273 N.Y. 334, 7 N.E.2d 254 (1937).

[47] 194 La. 470, 193 So. 710 (1940), appeal dismissed, 310 U.S. 613, 60 S.Ct. 1089 (1940). Also see Bigsby v. Johnson, 99 P.2d 268 (1940), rev'd. on a different issue, 18 Cal.2d 860, 118 P.2d 289 (1941); People ex. rel. Walker Engraving Corp. v. Graves, 243 App. Div. 652, 276 N.Y.S. 674, 268 N.Y. 648, 198 N.E. 539 (1939); Voss v. Gray, 70 N.D. 727, 298 N.W. 1 (1941); Cusick v. Commonwealth, 260 Ky. 204, 84 S.W.2d 14 (1935); State Tax Commission v. Hopkins, 234 Ala. 556, 176 So. 210.

[48] 187 Tenn. 112, 213 S.W.2d 27 (1948). The appellant (Crescent) argued unsuccessfully that the rental of a film is a license rather than the transfer of tangible personal property. In Burgess Co. v. Ames, 359 Ill. 427, 194 N.E. 565 (1935), a case cited by appellant, it was held that the right to reproduce a musical composition is a license rather than a transfer of tangible personal property. Also cited were A.B.C. Electrotype Co. v. Ames, 364 Ill. 360, 4 N.E.2d 476 (1936) and Adair v. Ames, 364 Ill. 342, 4 N.E.2d 481 (1936), which held that printers and electrotypers, respectively, are engaged in furnishing skill and labor rather than tangible personalty in the printed matter produced.

[49] 213 S.W.2d 27 at 29. Also see Saverio v. Carson, 186 Tenn. 166, 208 S.W.2d.1018 (1948). In 1951, the legislature changed the result in Crescent by exempting theaters which pay the 2 percent privilege tax from operation of the sales and use tax. T.C.A. Sec. 67-3013. However, the present Tennessee Code (Sec. 67-3002(b)) taxes both prewritten and custom programs.

[50] 57 Cal.2d 684, 21 Cal. Rptr. 604, 371 P.2d 340 (1962).

[51] Roehm v. County of Orange, 32 Cal.2d 280, 196 P.2d 550 (1948). In this case, the court stated that: "Intangible values...that cannot be separately taxed as property may be reflected in the valuation of taxable property. Thus, in determining the value of property, assessing authorities may take into consideration earnings derived therefrom, which may depend upon the possession of intangible rights and privileges that are not themselves regarded as a separate class of taxable property."

[52]336 F.2d 746 (D.C. Cir. 1964).

[53]In a prior case decided by this same Circuit Court of Appeals (Washington Times-Herald v. District of Columbia, 94 U.S. App. D.C. 154, 213 F.2d 23 (1954)), a different conclusion was reached where "mats" were furnished (but not sold) to newspapers for printing comic strips on a one-time basis. The court reasoned that the sale of all interests constitutes a sale for sales tax purposes, but the sale of a one-time right to use property does not.

[54]See Boswell v. Paramount Television Sales, Inc., 291 Ala. 490, 282 So.2d 892 (1973). In its opinion, the Alabama court cited United Artists Corp. v. Taylor and Crescent Amusement Co. v. Carson.

[55]490 S.W.2d 796 (1973).

[56]Ibid. at 799.

[57]University Microfilms v. Scio Township.

[58]Bay Trust Co. v. Bay City, 280 Mich. 44, 273 N.W. 437 (1937); Loomis v. City of Jackson, 130 Mich. 594, 90 N.W. 328 (1902); Perry v. Big Rapids, 67 Mich. 146, 34 N.W. 530 (1887); Dart v. Woodhouse, 40 Mich. 339, 29 Am. Rep. 544 (1879).

[59]District of Columbia v. Universal Computer Associates, Inc.; Texas Instruments, Inc. v. United States (see Case No. 38, Appendix C) and Greyhound Computer Corp. v. State Department of Assessments and Taxation.

[60]327 F.Supp. 189 (C.D. Cal. 1971), aff'd. as modified, 480 F.2d 66 (9th Cir. 1973), 32 AFTR2d 73-5094, Cert. denied, 415 U.S. 934, 94 S.Ct. 1451, 39 L.Ed.2d 493 (1974). As a result of this case, Regulation 1.48-1(F), which treats motion picture film negatives as intangible, was declared invalid. A few years later, the Fifth Circuit Court of Appeals agreed with the Disney decision and also held the regulation to be invalid. See Texas Instruments, Inc. v. United States, 551 F.2d 599, 39 AFTR2d 77-1383 (5th Cir. 1977).

When Congress re-enacted the investment tax credit in 1971, it expressly indicated its agreement with the Disney holding that motion pictures and TV films are tangible personal property eligible for the investment tax credit. See S.Rep. No. 92-437, 92d Cong., 1st Sess. 34, 1971 U.S. Code

Cong. and Adm. News, pp. 1918, 1941 (1971). Furthermore, the Tax Reform Act of 1976 added Section 48(K) to the Internal Revenue Code, which treats motion picture and TV films as tangible personal property eligible for the investment tax credit. See also Treasury Regulation Section 7.48-1(a).

[61]549 F.2d 576 (9th Cir. 1977), 39 AFTR2d 77-796. Other Ninth Circuit cases involving similar issues have reached similar conclusions. See Bing Crosby Productions, Inc. v. United States, and MCA, Inc. and Universal City Studios, Inc. v. United States, 588 F.2d 1293 (9th Cir. 1979), 79-1 USTC 9150. (See Case No. 3, Appendix C.) For a sales tax case involving the tangibility of master negatives, see Simplicity Pattern Company, Inc. v. State Board of Equalization, 101 Cal. App.3d 184, 161 Cal. Rptr. 558 (1980). (See Case No. 34, Appendix C.)

[62]276 N.Y. 198, 11 N.E.2d 728 (1937).

[63]276 N.Y. 205, 11 N.E.2d 731 (1937).

[64]See Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976); Williams and Lee Scouting Service, Inc. v. Calvert, 452 S.W.2d 789 (Tex. Civ. App. 1970).

[65]Time, Inc. v. Hulman, 31 Ill.2d 344 at 350 (1964).

[66]Bunker-Ramo Corp. v. Porterfield, 21 Ohio St.2d 231, 257 N.E.2d 365 (1970).

[67]15 Ohio St.2d 92, 238 N.E.2d 782 (1968).

[68]162 Ohio St. 245, 122 N.E.2d 787 (1954).

[69]174 Ohio St. 518, 190 N.E.2d 258 (1963).

[70]257 N.E.2d 368 (1970).

[71]287 Md. 178, 411 A.2d 439 (1980).

[72]241 Md. 345, 216 A.2d 717 (1966).

[73]See Askew v. Bell, 248 So.2d 501 (Fla. Dist. Ct. App. 1971); Spagat v. Mahin, 50 Ill.2d 183, 277 N.E.2d 834 (1971); J. H. Walters & Co. v. Department of Revenue, 44 Ill.2d 95, 254 N.E.2d 485 (1969); Dun & Bradstreet v. City of New York, 276 N.Y. 198, 11 N.E.2d 728 (1937). See also Undercofler v. Grantham Transfer Co., 114 Ga. App. 868, 152

S.E.2d 900 (1966); Machinery Moving, Inc. v. Porterfield, 26 Ohio St.2d 99, 269 N.E.2d 418 (1971).

[74]J. H. Walters & Co. v. Department of Revenue, 44 Ill.2d 95 at 104-105, 254 N.E.2d 485 at 491 (1969); Community Telecasting Service v. Johnson, 220 A.2d 500 at 503 (1966); Dun & Bradstreet v. City of New York, 276 N.Y. 198 at 205, 11 N.E.2d 728 at 731 (1937).

[75]398 Ill. 41, 46, 74 N.E.2d 877, 879-880 (1947). See General Data Corp. v. Porterfield, 21 Ohio St.2d 233, 257 N.E.2d 359 (1970), which involved the installation and use of computer equipment used almost exclusively for the dissemination of hotel reservation information. (See Case No. 23, Appendix C.)

[76]50 Ohio St.2d 270, 364 N.E.2d 27 (1977).

[77]The holding in this case is based on the reasoning set forth in Accountants Computer Services, Inc. v. Kosydar, 35 Ohio St.2d 120, 298 N.E.2d 519 (1973), discussed below.

[78]258 N.W.2d 606 (Minn. 1977).

[79]276 N.Y. 198, 11 N.E.2d 728 (1937).

[80]258 N.W.2d 610.

[81]182 N.J. Super. 179, 440 A.2d 104 (N.J. Tax Ct. 1981). Also see Alan Drey Co., Inc. v. State Tax Commission, 67 A.D.2d 1055, 413 N.Y.S.2d 516, 47 N.Y.2d 708, 418 N.Y.S.2d 1024, 392 N.E.2d 887 (N.Y. App. Div. 1979). A subsequent New York decision (Mertz v. State Tax Commission, 89 A.D.2d 396, 456 N.Y.S.2d 501 (A.D. 1982)) (see Case No. 30, Appendix C) concluded that its decision in Alan Drey should be construed as holding that the transactions involving computer tapes constituted sales of information, while those involving gummed labels constituted sales of tangible personal property. In New York, the sale of information is a taxable event.

[82]Mertz v. State Tax Commission, 89 A.D.2d 396, 456 N.Y.S.2d 501 (A.D. 1982). (See Case No. 30, Appendix C.)

[83]Tax Law, Sec. 1105, subd. (c), par. (1).

[84]See Commerce Union Bank v. Tidwell and District of Columbia v. Universal Computer Associates.

[85]94 U.S. App. D.C. 154, 213 F.2d 23 (1954).

[86]94 U.S. App. D.C. 155, 213 F.2d 24 (1954).

[87]366 So.2d 30 (Fla. Dist. Ct. App. 1978).

[88]The court determined that Southern Bell met all three tests. In support of its position, the court cited Askew v. Bell, 248 So.2d 501 (Fla. 1st DCA 1971), where the court held that a court reporter, who for a fee, records a judicial or administrative proceeding, or takes down and transcribes testimony, is engaged in rendering a service and the transcript which he furnishes to the persons who employ him is a mere incident of that service. The Askew court held that such a transaction would be subject to sales tax only when transcripts are sold to third persons who are not parties to the proceeding for which the court reporter was engaged.

The court also cited Nova Computing Services v. Askew, D.O.A., Case No. 76-1475: March 1, 1977, which is discussed later.

[89]Section 2-105(1). For a detailed analysis of this aspect of software, see "Computer Programs as Goods Under the U.C.C.," 77 Michigan Law Review, April, 1979, 1149-1165.

[90]151 Ind. App. 176, 278 N.E.2d 608 (1972). Also see Wivagg v. Duquesne Light Co., 73 Pa. D. & C.2d 694 (1975); Buckeye Union Fire Insurance Co. v. Detroit Edison Co., 38 Mich. App. 325, 196 N.W.2d 316 (1972). The court in Gardiner v. Philadelphia Gas Works, 413 Pa. 415, 197 A.2d 612 (1964) made the analogy of electricity in wires to natural gas in pipes. Natural gas has been held to be a "good."

[91]See Commerce Union Bank v. Tidwell; Comptroller of the Treasury v. Equitable Trust Company, 464 A.2d 248 (Md., 1983); Chittenden Trust Company v. King, 465 A.2d 1100 (Vt., 1983); District of Columbia v. Universal Computer Associates; Robert D. Crockett, "Software Taxation: A Critical Reevaluation of the Notion of Intangibility," Brigham Young University Law Review, 1980, No. 4, 859-879; Karl K. Heinzman, "Computer Software: Should It Be Treated As Tangible Property For Ad Valorem Tax?," The Journal of Taxation, September, 1972, 184-186.

[92]361 F.Supp. 325 (E.D. Pa. 1973), aff'd. 493 F.2d 1400 (3d Cir. 1974). Also see Burroughs Corporation v. Joseph Uram Jewelers, Inc., 305 So.2d 215 (Fla. Dist. Ct. App. 1974). The Uniform Commercial Code provision relating to breach of contract applies only to the sale of "goods," not "services."

[93]430 F.Supp. 988 (S.D.N.Y. 1977), aff'd. mem., 614 F.2d 1286 (2d Cir. 1979). If held to be intangible, the computer system in question could not have been replevied.

[94]Triangle Underwriters, Inc. v. Honeywell, Inc., 457 F.Supp. 765 (E.D.N.Y. 1978), rev'd. on other grounds, 604 F.2d 737 (2d Cir. 1979).

[95]468 F.2d 695, 697 (2d Cir. 1972).

[96]See Dynamics Corporation of America v. International Harvester Co., 429 F.Supp. 341 (S.D.N.Y. 1977).

[97]479 F.Supp. 738 (D.N.J. 1979), 635 F.2d 1081 (1980).

[98]See Atlas Industries, Inc. v. National Cash Register, 216 Kan. 213, 531 P.2d 41 (1975) and Acme Pump Company, Inc. v. National Cash Register, 32 Conn. Sup. 69, 337 A.2d 672 (C.C.P. 1974).

[99]Accountants Computer Services, Inc. v. Kosydar; Central Data Systems, Inc. v. Kosydar; and, The Andrew Jergens Co. v. Kosydar, all cited as 35 Ohio St.2d 120, 298 N.E.2d 519 (1973). The three cases involved similar issues and were tried simultaneously.

[100]Goodyear Aircraft Corp. v. Arizona State Tax Commission, 1 Ariz. App. 302, 306, 402 P.2d 423, 427 (1965).

[101]Rice v. Evatt falls in the second of the three categories mentioned above. It involved an optometrist who did not separate his charge for professional examination from his charge for glasses and other items of personal property transferred. Two separate and distinct transactions were being performed therein; one, a purely professional service, and the other purely a sale of tangible personal property. The fact that the two transactions were not billed separately is of no consequence in determining the taxability of the transactions.

[102]See Recording Devices v. Bowers, 174 Ohio St. 518, 190 N.E.2d 258 (1963); Recording Devices v. Porterfield, 30 Ohio St.2d 208, 283 N.E.2d 626 (1972); Columbus Coated Fabrics v. Porterfield, 30 Ohio St.2d 307, 285 N.E.2d 50 (1972); and Koch v. Kosydar, 32 Ohio St.2d 74, 290 N.E.2d 847 (1972).

[103]43 Ohio St.2d 148, 331 N.E.2d 435 (1975). For an in depth analysis of this case, see Michael J. Bayer, "Citizens Financial Corporation v. Kosydar: Data Processing and the Ohio Sales Tax Service Exemption," 6 Capital University Law Review, 1977, 663-672.

[104]35 Ohio St.2d 120, 298 N.E.2d 519 (1973).

[105]32 Ohio St.2d 74, 290 N.E.2d 847 (1972). In Koch, the court defined a personal service as "an act done personally by an individual...involving either the intellectual or manual personal effort of an individual." (32 Ohio St.2d at 78, 290 N.E.2d at 850).

[106]41 Ohio St.2d 68, 322 N.E.2d 668 (1975).

[107]Nova Computing Services v. Askew, D.O.A., Case No. 76-1475: March 1, 1977.

[108]549 S.W.2d 166 (Texas 1977). In Janesville Data Center, Inc. v. Wisconsin Department of Revenue, 84 Wis.2d 341, 267 N.W.2d 656 (1978), an almost identical fact pattern produced the same result as in Bullock. In Janesville, customers were given a slight discount if they supplied their own cards.

For a contrary result having a similar fact pattern, see Intellidata Incorporated v. State Board of Equalization, 139 Cal. App.3d 594, 188 Cal. Rptr. 850 (1983). (See Case No. 27, Appendix C.) The California view is that the entire transaction may be treated as tangible even though virtually all of the value is attributed to an intangible element such as intellectual content. This view was used in People v. Grazer, 138 Cal. App.2d 274, 291 P.2d 957 (1956) (radiologist's X-ray films); Albers v. State Board of Equalization, 237 Cal. App.2d 494, 47 Cal. Rptr. 69 (1965) (draftsman drawings); Simplicity Pattern Co. v. State Board of Equalization, 27 Cal.3d 900, 167 Cal. Rptr. 366, 615 P.2d 555 (1980) (master audio-visual negatives).

[109]452 S.W.2d 789 (Tex. Civ. App. 1970). In Williams and Lee Scouting, the court found that the object of the transaction for the plaintiff's subscribing customers was the

scouting service provided by plaintiff. Current statistical data on oil and gas well production was continuously gathered in the field by Williams and Lee Scouting Service employees. The data was compiled and mailed to subscribing customers in regular reports duplicated by offset printing at the plaintiff's office. The Comptroller (Calvert) attempted to tax the whole transaction because a tangible item, the printed report, changed hands.

For a similar case involving credit report information, see Credit Bureau of Miami County, Inc. v. Collins, 50 Ohio St.2d 270, 364 N.E.2d 27 (1977). (See Case No. 15, Appendix C.)

[110]50 Ohio St.2d 249, 364 N.E.2d 25 (1977).

[111]In support of its position, the court cited Accountants Computer Services v. Kosydar; Citizens Financial Corp. v. Kosydar, 43 Ohio St.2d 148, 331 N.E.2d 435 (1975); Federated Department Stores v. Kosydar, 45 Ohio St.2d 1, 340 N.E.2d 840 (1976); and Lindner Brothers v. Kosydar, 46 Ohio St.2d 162, 346 N.E.2d 690 (1976).

[112]See Scott R. Schmedel.

[113]465 F.2d 615 (D.C. Cir. 1972).

[114]94 U.S. App. D.C. 154, 213 F.2d 23 (1954).

[115]118 U.S. App. D.C. 358, 336 F.2d 746 (1964).

[116]32 Cal. App.3d 654, 108 Cal. Rptr. 434 (1973).

[117]Greyhound Computer Corporation v. State Department of Assessments and Taxation, 271 Md. 674, 320 A.2d 52 (1974).

[118]For analogies to the film-making industry the court cited Michael Todd Co. v. County of Los Angeles and District of Columbia v. Norwood Studios, Inc. This analogy was challenged in Heinzman, "Computer Software: Should It Be Treated As Tangible Property For Ad Valorem Tax?," Journal of Taxation, 184, 185-186 (1972).

[119]538 S.W.2d 405 (Tenn. 1976).

[120]187 Tenn. 112, 213 S.W.2d 27 (1948).

[121]See District of Columbia v. Universal Computer Associates, Inc.

[122]See Washington Times-Herald, Inc. v. District of Columbia, 94 U.S. App. D.C. 154, 213 F.2d 23 (1954). There, the newspaper had purchased from an artist the right to reproduce his cartoons. These cartoons were transferred to the newspaper and were physically embodied in mats which were then used to reproduce the cartoons in the newspaper. In that case the court held that what the newspaper had purchased was the right to reproduce the cartoons, and not the material upon which the cartoons were impressed.

In a closely analogous case (Dun & Bradstreet v. City of New York), the New York Court of Appeals held that financial informational services rendered to clients of Dun & Bradstreet were nontaxable even though reference books containing financial information were delivered to subscribers. No separate charge was made for the books, and they could not be obtained without subscribing to the service. Also, in that case, as here, the same service could have been rendered without transferring the reference books, but the cost of the service would have been much higher.

The result in this case was subsequently changed by Tenn. Code Sec. 67-3002(b), which calls for the sales taxation of both prewritten and custom programs.

[123]349 So.2d 1160 (1977). This case was a case of first impression in Alabama (meaning no case having a similar fact pattern had previously been tried in Alabama). The court's decision was influenced by Commerce Union Bank v. Tidwell and District of Columbia v. Universal Computer Associates, Inc. Commerce Union Bank v. Tidwell held that computer software is intangible and therefore not subject to the Tennessee sales tax.

[124]291 Ala. 490, 282 So.2d 892 (1973).

[125]349 So.2d at 1162. Note: Alabama Rule C28-001 presently exempts both prewritten and custom programs from sales and use taxation.

[126]549 S.W.2d 166 (Tex. 1977).

[127]584 S.W.2d 548 (Tex. Civ. App. 1979).

[128]Tex. Tax - Gen. Ann. art. 20.01(P) (1969).

[129]Bullock v. Statistical Tabulating Corp.

[130]Williams and Lee Scouting Service, Inc. v. Calvert.

[131] State of Alabama v. Central Computer Services, Inc. and Commerce Union Bank v. Tidwell.

[132] District of Columbia v. Universal Computer Associates, Inc. and Commerce Union Bank v. Tidwell.

[133] 85 Ill.2d 84, 421 N.E.2d 175 (1981).

[134] In its argument, the Department cited Time, Inc. v. Hulman, 31 Ill.2d 344 (1964), where the Illinois court decided that magazines are tangible personal property and that the proceeds from their sale would be subject to the retailers' occupation tax were it not for an exclusion afforded to newspapers and other materials "such as" newsprint.

[135] Ingersoll Milling Machine Co. v. Department of Revenue, 405 Ill. 367 (1950).

[136] See John W. Bryant and Lance R. Mather, "Property Taxation of Computer Software," 18 New York Law Forum, Summer, 1972, 59-75; reprinted in The Monthly Digest of Tax Articles, March, 1973, 31-40.

[137] In support of its position, the court cited: First National Bank v. Bullock; Janesville Data Center, Inc. v. Wisconsin Department of Revenue; Honeywell Information Systems, Inc. v. Maricopa County (see Case No. 26, Appendix C); State v. Central Computer Services, Inc.; Commerce Union Bank v. Tidwell; District of Columbia v. Universal Computer Associates, Inc.; County of Sacramento v. Assessment Appeals Board No. 2. Also cited was Cal. Revenue & Tax Code Secs. 995, 995.1 and 995.2 (West. Supp. 1974), which subjects operational software to property taxation, but exempts applicational software. See also Honeywell, Inc. v. Lithonia Lighting, Inc., 317 F. Supp. 406 (N.D. Ga. 1970); also, Greyhound Computer Corp. v. State Department of Assessments and Taxation, 271 Md. 674, 320 A.2d 52 (1974), which held that only so much of software as consists of services is intangible and not taxable.

[138] 642 S.W.2d 347 (Mo. 1982).

[139] State of Alabama v. Central Computer Services, Inc.; Commerce Union Bank v. Tidwell; Bullock v. Statistical Tabulating Corp.; First National Bank of Fort Worth v. Bullock; First National Bank of Springfield v. Department of Revenue; District of Columbia v. Universal Computer Associates, Inc.; Janesville Data Center, Inc. v. Wisconsin Department of Revenue.

[140]464 A.2d 248 (Md., 1983).

[141]The analysis set out here is more fully developed in "Software and Sales Taxes: The Illusory Intangible," 63 B.U.L. Rev. 181 (1983).

[142]287 Md. 178, 411 A.2d 439 (1980).

[143]Ibid. 287 Md. at 186, 411 A.2d at 443.

[144]Ibid. 287 Md. at 188, 411 A.2d at 444.

[145]See Anthony Pools v. Sheehan, 295 Md. 285, 455 A.2d 434 (1983); Burton v. Artery Company, 279 Md. 94, 367 A.2d 935 (1977); Quotron did not say that the dominant purpose of obtaining data made the subject of the contract intangible because information is intangible.

[146]465 F.2d 615 (D.C. Cir. 1972).

[147]This form over substance argument was also adopted by the court in Chittenden Trust Company v. King, 465 A.2d 1100 (Vt., 1983).

[148]465 A.2d 1100 (Vt., 1983). The Supreme Court of South Carolina recently determined that the sale of computer software is the sale of tangible personal property. See Citizens and Southern Systems, Inc. v. South Carolina Tax Commission, Opinion No. 22024 (Filed January 10, 1984).

[149]The pressures that come to bear on the Congress of the United States also come to bear on the State legislatures. Pressure groups, plus the need to raise revenue, play major roles in the determination of which expenditures should be classified as taxable.

# ADDENDUM

## SALES AND USE TAX STATUS OF COMPUTER PROGRAMS BY STATE

SALES AND USE TAX STATUS OF COMPUTER PROGRAMS BY STATE[1]

| Code<br>E - Exempt<br>T - Taxed | Prewritten Programs | Custom Programs | Authority |
|---|---|---|---|
| Alabama | E | E | Rule C28-001 |
| Arizona | E | E | Rule 15-5-1853(c); Rule 15-5-1513(c) |
| Arkansas | T | T | Informal Opinion (1979) |
| California | T[2] | E[2] | Cal. Rev. & Tax Code §6010.9; Reg. 1502 |
| Colorado | E[3] | E[3] | Special Regulation |
| Connecticut | T | T[4] | Conn. Gen. Stat. §12-407(2); Bulletin #3 |
| District of Columbia | E | E | District of Columbia v. Universal Computer Associates, Inc., 465 F.2d 615 (D.C. Circuit 1972) |
| Florida | E[3,5] | E | Rule 12A-1.32(4) |
| Georgia | T | T | Informal Opinion (1982) |
| Hawaii | T | T[6] | Informal Opinion (1982) |
| Idaho | T | T | Regulation 12-2 |
| Illinois | E[5] | E | 86 Ill. Ad. Code §130.1935 |
| Indiana | E[5] | E | Rev. Information Bulletin #8 |
| Iowa | T | T[7] | Rule 18.34 |
| Kansas | T | T | K.S.A. 79-3603(s) |

| Code<br>E - Exempt<br>T - Taxed | Prewritten Programs | Custom Programs | Authority |
|---|---|---|---|
| Kentucky | T | T | Informal Opinion (1982) |
| Louisiana | E | E | Art. 47:301(6) |
| Maine | T | E | Informal Opinion (1982) |
| Maryland | T | E | Equitable Trust Company v. Comptroller, 464 A.2d 248 (Md., 1983) |
| Massachusetts | T | T[7] | Reg. 64H.06 |
| Michigan | T | E | Maccabees Mutual Life Insurance Company v. State Department of Treasury, 122 Mich. App. 660, 332 N.W.2d 561 (1983) |
| Minnesota | T[8] | E | Minn. Stat. §297A.01(3)(a); Reg. 610 |
| Mississippi | T | E | Informal Opinion (1982) |
| Missouri | T | E | James v. Tres Computer Systems, Inc., 642 S.W.2d 347 (Mo., 1982) |
| Nebraska | E | E | Rev. Rul. 1-81-4 |
| Nevada | T | T | Informal Opinion (1981) |
| New Jersey | E[3,5] | E[3] | N.J. Ad. Code 18:24-25.1 |
| New Mexico | T | T[6] | G.R. Reg. 3(K):2; G.R. Reg. 3(F):64 |
| New York | E[3,5] | E[3] | TSB 1978-(1)(S) |
| North Carolina | T[9] | E | Informal Opinion (1982) |
| North Dakota | E[3,5,10] | E[3,10] | Technical Memorandum |

| Code<br>E - Exempt<br>T - Taxed | Prewritten Programs | Custom Programs | Authority |
|---|---|---|---|
| Ohio | T | T[11] | Ohio Rev. Code §5739.01 |
| Oklahoma | T | ?[12] | Okla. Stat. tit. 68, §1354(H) |
| Pennsylvania | T | T | Reg. 163 |
| Rhode Island | T | T[7] | Reg. - Computers and Related Systems |
| South Carolina | T | T | Reg. 117-174.262; Citizens and Southern Systems, Inc. v. Tax Commission, Supreme Court Opinion No. 22024 (January 10, 1984) |
| South Dakota | T | T[4] | Reg. 64:06:02:79; Reg. 64:06:02:80 |
| Tennessee | T | T | Tenn. Code §67-3002(b) |
| Texas | E[13] | E | Tex. Admin. Code tit. 34, §3.308 |
| Utah | T | E | Informal Opinion (1982) |
| Vermont | T | E | Chittenden Trust Company v. King, 465 A.2d 1100 (Vt., 1983) |
| Virginia | T | T[7] | Informal Opinion (1981) |
| Washington | T | E[14] | ETB 515.04.155 |
| West Virginia | T | T | Informal Opinion (1982) |
| Wisconsin | T | T[7] | Proposed Rule 11.71 |
| Wyoming | T | T | Wyo. Stat. §29-6-404(a)(xiii) |

## FOOTNOTES

[1]This listing is designed to provide general information only regarding the tax status of computer programs. It is not to be construed as determinative of tax liability. Note that not all states have taken a formal position with respect to the taxability of programs. This list is an updated version of a list prepared and copyrighted (1983) by Ronald J. Palenski, Associate General Counsel of ADAPSO, and is printed here by permission.

[2]Assembly Bill 2932, enacted September 22, 1982, exempted custom computer programs generally (except basic operating programs) whether in human or machine readable form. Also exempted were modifications to prewritten programs, designed specifically for a single user.

[3]Software is generally considered to be intangible so long as there is: (a) vendor analysis of user requirements or, (b) modification of software to fit a particular hardware/software configuration.

[4]Custom programs transferred in human-readable form are taxed as services rather than as tangible personal property.

[5]Computer game cartridges and similar mass distribution programs do not qualify for exemption.

[6]Custom programs are taxed as services rather than as tangible personal property.

[7]Custom programs are taxable if sold, leased, or licensed in machine-readable form; custom programs are exempt if sold, leased, or licensed in human-readable form, such as program instructions listed on coding sheets.

[8]Effective July 1, 1983, only programs that will require vendor modifications to meet the specific requirements of the customer will be regarded as intangible property exempt from sales and use taxation; otherwise, programs sold "off-the-shelf" will be regarded as tangible and subject to tax.

[9]Effective August 1, 1983, all prewritten programs are subject to sales and use taxation while custom programs are not. A custom program is one prepared to the special order of the customer and includes specially prepared modifications to prewritten programs. A program is regarded as custom if there is: vendor analysis of user requirements or modification of software to fit a particular hardware/software configuration.

[10]In order to preserve the program exemption, charges for tangible media (e.g., tapes, cards, etc.) must be separately billed and the tax for such applied.

[11]Effective July 1, 1983, a variety of computer services, including the "designing, selling, leasing, modifying, or debugging of specialized or customized computer programs," became subject to sales and use taxation in Ohio.

[12]Because of the peculiar wording of the Oklahoma statute (referencing both "software" and prewritten programs"), it is unclear whether custom programs are taxable or exempt. In particular cases, please consult local counsel.

[13]This exemption extends even to home computer game cartridges.

[14]Note that services such as custom programming are subject to the Business and Occupation Tax.

# CHAPTER FOURTEEN

# FEDERAL TAX CREDITS AND DEPRECIATION

## Introduction

Tax credits are enacted by Congress to give incentives to business and individuals to invest in certain areas to achieve social or economic goals or to ease the tax burden of certain taxpayer groups. The child and dependent care credit, for example, was enacted to provide a tax incentive for mothers to obtain employment rather than remain on welfare (the dole), therefore becoming taxpayers rather than tax charges. The rehabilitation credit was enacted to encourage landlords to invest in and improve certain types of rental property in order to clean up the slums and increase the number and quality of low income rental properties. The targeted jobs credit was enacted to provide an incentive for employers to hire and train chronically unemployed and unskilled workers who would otherwise remain tax charges. The employee stock ownership plan(ESOP) credit was enacted to provide employers with an incentive to adopt a certain

type of employee pension plan. Energy tax credits were enacted to provide individuals and businesses with an added incentive to invest in energy-saving equipment and insulation. The earned income credit provides low income individuals with an extra tax break that is not available to moderate or high income individuals. The tax credit for the elderly provides a similar tax break for the elderly. The political campaign contributions credit provides an incentive for taxpayers to contribute to the political party or candidate of their choice.

The two tax credits discussed in this chapter are the investment tax credit and the credit for research and experimental expenditures. The investment tax credit was first enacted in 1962 by President Kennedy and, with minor exceptions, has been a significant fiscal policy tool ever since. The investment tax credit provides a tax incentive for businessmen to invest in certain types of business property in the hope that such investment will expand the economy and employment by some multiple of the investment. The investment tax credit has been suspended, repealed, reinstated and reinacted

numerous times since its inception in 1962, and the tax act currently being discussed in Congress, if enacted in its present form, would make additional changes. An example of how the investment tax credit is computed is given later in this chapter.

The credit for research and experimental expenditures was enacted to provide a tax incentive for businesses to invest more funds in research and development in certain target areas in order to expand employment and advance technology. The credit is available for expenditures made after June 30, 1981 and before January 1, 1986. An example of the credit for research and experimental expenditures is given later in this chapter.

All of the above-mentioned tax credits are granted at the federal level. State tax credits for some of the above-mentioned items may also exist, but are not discussed here because of their relative insignificance and irrelevance. The investment tax credit may be taken on bundled software and, according to one federal court(see

Texas Instruments, Case No. 38, Appendix C), may also be taken on software that is not bundled. The credit for research and experimental expenditures may be taken for certain software expenditures, but which expenditures qualify for this credit and which do not has not yet been clearly stated. The Proposed Treasury Regulations dealing specifically with the treatment of software for research and experimental credit purposes were withdrawn due to the strong opposition of the software industry, and new regulations will not be issued prior to the 1986 election. (The Internal Revenue Service is working on drafting proposed regulations that, if adopted, would classify software as intangible and therefore ineligible for the investment tax credit. See Federal Register, Volume 49, No,. 33, Thursday, February 16, 1984, 5939-5941.)

## INVESTMENT TAX CREDIT

Computer hardware qualifies for the investment tax credit,[1] and so may computer software in certain instances. Revenue Procedure 69-21 (see appendix D for full text of IRS pronouncements) addresses the software issue.[2] It defines computer software to include:

> "...all programs or routines used to cause a computer to perform a desired task or set of tasks, and the documentation required to describe and maintain those programs. Computer programs of all classes, for example, operating systems, executive systems, monitors, compilers, and translators, assembly routines, and utility programs as well as application programs are included. 'Computer software' does not include procedures which are external to computer operations, such as instructions to transcription operators and external control procedures."

This revenue procedure specifically permits a taxpayer consistently either to expense software development costs or amortize them over five years or less, as is done for research and experimental expenditures.[3] Purchased software costs that are included in the price of hardware and are not separately stated and are treated as tangible may be amortized over five years or less. Software that is leased for use in a trade or business may be deducted from taxable income in accordance with Regulation 1.162-11. An Internal Revenue Service Revenue Ruling[4] allows the investment credit to be taken for software where the cost of the software is included in the cost of the hardware. Where software development costs have been expensed in prior years and the taxpayer capitalizes software costs incurred for a new software project, such change is considered to be a change in accounting method requiring IRS approval.[5]

The IRS treats software that is separately priced as intangible property, and therefore not qualifying for the investment tax credit. Many state courts also treat software as intangible for sales, use and property tax purposes.[6]

However, three recently decided state tax cases held that software is tangible for sales[7] and use[8] tax purposes. These three decisions are diametrically opposed to the weight of judicial precedent. (see Chapter 13).

At least one case [9] has held software to be tangible for criminal law purposes. In that case, a Texas man stole some computer programs from his employer and claimed that he had committed petty larceny rather than grand larceny because the only tangible property he stole was the paper the programs were printed on, which had a value of less than $50. The court disagreed, holding that the programs had a value in excess of the paper upon which they were printed, and were tangible property for purposes of the criminal

statute.

In Computer Sciences Corporation v. Commissioner,[10] computer software was held to be intangible for collapsible corporation[11] purposes (see Case No. 13, Appendix C). ( A collapsible corporation is formed and availed of for the sole purpose of tax avoidance. It is formed at the beginning of a venture and is liquidated shortly before the venture reaches fruition, resulting in substantial tax benefits that would not be permitted if the corporation remained in existence). In that case, Computax, a wholly owned subsidiary of Computer Sciences Corporation, owned a program for the computer preparation of income tax returns. The IRS contended that a collapsible corporation had been set up with the intent of avoiding taxes. Computer Sciences Corporation claimed that property manufactured, constructed or produced (such as the Computax program) by a taxpayer was not intended to apply to intangible property of any type, and even if the section were intended to refer to intangible property, no such intangible property was produced since all that the company produced

and developed for transfer to Computax was "knowhow" and goodwill which is not "property."

Other court cases have addressed the tangibility issue for motion picture film negatives and software. Films and records have much in common with computer software but several distinctions can be made as well. Most of the value of a film or record (or a book, for that matter) is attributable to the intellectual and artistic content rather than the celluloid, plastic or paper upon which that content is recorded. Buyers of records and film (movie theaters) do not consider themselves to be purchasers of celluloid or plastic. However, one critical distinction is that the celluloid upon which the movie is recorded is a crucial element of the motion picture.

Another distinction that can be made between film and software is that the media upon which the computer program is recorded (cards, tape, disk, etc.) can be returned to the seller or destroyed after the program has been run through the computer; it is of no

further use or value. Movie film, on the other hand, has continuing value after the movie has been shown; it can be used again and again.

A third distinction that can be made between software and films, records and books is that the latter three items can be used immediately upon purchase, whereas software must first be translated into a language that can be understood by the computer. Furthermore, the latter three items are immediately perceptible to the senses, whereas software, in essence, is not.

A fourth distinction that has been made between software and films, records and books is that the software sales or licensing agreement often includes periodic updating by the seller. Films, records and books, on the other hand, are not updated after sale. However, this distinction does not apply to the many programs that are not updated after sale.

In the first series of Walt Disney cases[12] (See Case Nos. 42 and 43, Appendix C), the issues were whether motion picture film negatives were tangible personal property for federal tax purposes, and whether motion picture film negatives qualify for the investment tax credit. These cases were discussed in Chapter 13. The commissioner contended that the negatives were not tangible personal property within the meaning of IRC Section 48 (a) (1) (A) and that they did not have a useful life of eight years, and could, therefore, not qualify for the investment tax credit.

Film negatives are used to make prints, which are copyrighted and exhibited in theaters or on television. The negatives are not copyrighted. The Commissioner argued that all labor and production costs of the negatives be attributed to the copyrighted prints.

The court held for Walt Disney Productions. Motion picture film negatives were held to be tangible personal property (notwithstanding Reg. 1.48-1(f), which the court held to be invalid) and the negatives in

question had a useful life sufficiently long to qualify for the investment credit. Film negatives, like production machinery, are standardized units of depreciable property which Disney uses to produce other products, the positive prints. The attribution of all the value of the film to the copyright, like the attribution of all the value of a machine used in production to a patent eventually procured on it is unwarranted. The district court held that the master motion picture film negatives in question produced in 1962, and used in the film manufacturing process were tangible personal property within the meaning of the Internal Revenue Code of 1954, that they had a useful life of more than eight years, that they were depreciable, and that they were eligible for the investment tax credit.

Another Disney case (see Case No. 43, Appendix C) also addressed the film negative tangibility issue.[13] In this case, Walt Disney Productions sued for a tax refund, claiming the investment tax credit under 26 U.S.C. Sections 38, 46-50 (1970) for the cost of fourteen film negatives produced in 1970. The district court granted the

refund and the government appealed.

Disney sought the investment tax credit for the production costs of the master negative which is used to produce positive prints. In calculating the investment credit, Disney claimed all the capitalized costs necessary to produce the master negative. These costs include preparing a script from a story, building sets, hiring and rehearsing talent, and editing the original film negatives and "mixing" the audio (dialogue, music and sound effects) tapes to produce the cut-picture negative and magnetic master sound tape. Disney did not claim the costs incurred in producing the negatives and did not claim as investment credit property the original or edited dialogue, music or sound effect tapes, although the expense for those items was claimed in computing the production costs of the master negative.

The depreciable base included the capitalized costs of producing answer prints, including the costs of the optical sound negatives but not including the costs of the intermediate printing articles. The

income-forecast method was used to depreciate each film title, a method that is generally used to depreciate intangible personal property.

On its 1970 tax return, Disney claimed an investment tax credit equal to seven percent of its alleged qualified investment in the master negatives produced during that taxable year. The Commissioner disallowed the investment tax credit on the ground that Disney's production costs were investments in intangible property, a copyright-protected motion picture. The government maintained that, while a master negative includes tangible items such as film stock and tapes, these tangible "things" have no separate identities or depreciation bases for tax purposes apart from the photoplay and intangible rights included in the finished product. The master negatives at issue in this case are the same type of property that the court previously characterized as qualifying for the investment tax credit in Disney I and Disney II.

Crosby, Sussex aand MCA addressed this same issue.[14] (see Case No. 3, Appendix C).

FACTS: The companies in question produced films which were shown at movie theaters, by the networks or by individual television stations. The process involved in the manufacture of these films consisted of three steps. In step one, the audio and video portions were recorded and edited separately and then combined to form the master negatives. Step two involved the making of various intermediate or secondary film and tape articles from the master negatives. The final step involved the actual manufacture of the release prints. These combine the audio and video portions onto a single property, which are then shown at movie theaters, by television networks, or by individual television networks, or by individual television stations. The release prints are generally struck from the different intermediate articles contained within step two.

The plaintiffs contended that the expenditures incurred in steps one and two qualify for the investment tax credit. The government contented that: (1) only step one expenditures qualify for the investment tax credit; (2) if predominant use is outside the United States, then the expenditures do not qualify for the investment tax credit even though the master negatives remained within the United States for more than 50 percent of the year in question; (3) predominant use should depend on the source of income, which approach adopted by the Tax Reform Act of 1976, or, alternatively, predominant use should be determined by the manufacturing role of the asset.

The court held for Crosby, Sussex and MCA. In order to qualify for the investment tax credit, the property in question must be Section 38 property, which was defined to include all tangible personal property, with certain specific exceptions (for property used to furnish lodging, property used by tax-exempt organizations, property

used by governmental units, and property used predominantly outside of the United States). Property is classified as Section 38 property if, in the opinion of Congress, such property is thought to assist in expanding employment or gross national product in a socially beneficial way. The property also had to have at least an eight year life (this rule has since been modified several times). The Tax Reform Act of 1976 refined the manner in which the investment credit was to be applied to movie and television films (P.L. 94-455 Sec. 804) by making specific rules for determining predominant use and useful life of films.

In its holding, the court in Crosby, Sussex and MCA stated that:

> "There is no rational reason why a distinction should be drawn between the printing articles in step #1 or step #2, and a taxpayer's entitlement to the investment credit. It would frustrate the statutory purpose of the investment credit which was found in the Disney cases to cover the motion picture and

television industry, to arbitrarily attribute the production costs to only the master negatives (step #1), and not allow the credit for the intermediate printing articles (step #2)."[15]

In Texas Instruments, Inc. v. United States,[16](see Case No. 38, Appendix C) the court addressed the issue of whether computer tapes, including the value of the data contained therein, are considered to be tangible personal property for investment tax credit and depreciation purposes.

During 1968 and 1969, a subsidiary of Texas Instruments was engaged in the business of collecting, processing and selling or licensing offshore seismic information to various customers who in turn used that information to explore for oil and gas. While the information was furnished to the customer in picture form depicting the contours of the earth's different strata, the actual collection and editing process involved a complicated computer process.

Seismic data were transmitted by electronic impulses and transcribed onto magnetic computer tapes know as "field" tapes. From these field tapes a "final" or "output" tape was produced, from which the pictures were produced.

When a customer placed an order for the information, he received a copy of the original picture produced by the process, a map locating the points where the sound waves were introduced into the earth and a report outlining the conditions under which the tests were conducted. The Texas Instruments subsidiary company retained all field and output tapes as well as the original analog film. Information furnished on the picture to customers was licensed on a nonexclusive basis. Customers were generally not permitted to make the data available to others.

Costs incurred in 1968 and 1969 were in excess of $3,000,000, and were deducted by the taxpayer as ordinary and necessary business expenses. The Internal Revenue Service disallowed these deductions

and determined that the costs should be capitalized and amortized over a seven year period. Texas Instruments did not dispute this determination, but insisted that it was entitled to an investment tax credit and to use the double-declining balance method of depreciation on the total capitalized costs of the field tapes, output tapes and analog films. The IRS contended that these tax benefits are applicable only to the cost of the raw tape and film itself, not to the full cost of producing the tapes and film.

At the district court level[17] the government's position was sustained on two grounds. First, when a taxpayer places into service tangible personal property that he produced himself, the investment tax credit may be taken only for the costs of the tangible inputs used. Labor and other intangible costs must be excluded. Since Texas Instruments failed to allocate its costs between the tangible and intangible inputs, no investment tax credit may be claimed. Second, the costs incurred in producing and processing the seismic data on the tapes and film did not constitute making an investment in tangible

property, but rather intangible information.

At the Appellate Court level, the government conceded that the district court's analysis on the first ground was erroneous, but sought to sustain the district court's judgment on the second ground, arguing that if the capital asset in which the taxpayer's costs are invested is essentially intangible, then all costs of acquiring or producing that asset constitute the basis of an intangible asset and the investment tax credit and the double declining balance method of depreciation are unavailable.

The Appellate Court held for Texas Instruments. Treasury Regulation Section 1.48-1(F) states that:

> "Intangible property, such as patents, copyrights, and subscription lists, does not qualify as section 38 property. The cost of intangible property, in the case of a patent or copyright, includes all costs of purchasing or producing the item patented or copyrighted. Thus, in the case of a motion picture or

television film or tape, the cost of the intangible property includes manuscript and screenplay costs, the cost of wardrobe and set design, the salaries of cameramen, actors, directors, etc., and all other costs properly includible in the basis of such film or tape."

Treasury regulations are ordinarily entitled to considerable weight in construing the statutory language. However, the court pointed out that the Ninth Circuit had previously ruled the regulation to be invalid as applied to film,[18] and the present court stated its agreement with the Ninth Circuit's decision. When Congress reenacted the investment tax credit in 1971, it expressly indicated its agreement with the Disney holding that motion pictures and television films are tangible personal property, eligible for the investment credit.[19] Furthermore, the Tax Reform Act of 1976 added Section 48 (k) to the Internal Revenue Code, and treats motion picture and television films as tangible personal property eligible for the investment tax credit.[20]

In Texas Instruments, the court held that the property in question is tangible personal property and, therefore, qualified for the investment tax credit and for the use of the double declining balance method of depreciation. For investment tax credit and depreciation purposes, the basis of tangible tapes and films on which the taxpayer recorded seismic data includes the cost of collecting the data and recording it on the raw tapes and films.

## RULES FOR THE INVESTMENT TAX CREDIT

### Qualifying Property

In order to qualify for the investment tax credit, the property must be Section 38 property.[21] Section 38 property includes property that is:

1. Depreciable as recovery property under the accelerated cost recovery system (ACRS), or as nonrecovery property, and
2. Tangible personal property, other than as air conditioning or heating unit, or

3. Other tangible property, except buildings or their structural components, used as an integral part of manufacturing, production, or extraction, etc., and
4. Placed in service during the year in a trade or business or for the production of income, and
5. Used primarily in the United States.

Computer hardware and bundled software qualify for the credit. One court[22] has ruled that unbundled software also qualifies.

Property is considered placed in service in the earlier of:

1. The tax year in which the period for depreciation for the property begins, or
2. The tax year in which the property is placed in a condition or state of readiness and availability for service.

## Partially Depreciable Property

If a depreciation deduction is allowed for only a part of the property placed in service during the year only that part of the property for which depreciation is allowable qualifies for the credit.

**Example:** A computer is used 80 percent for business and 20 percent for personal purposes. Only 80 percent of the computer's basis (or cost) qualifies for the credit.

## Recovery Property[23]

Recovery property is tangible depreciable property placed in service after 1980 that is not excluded property. Generally, it includes new or used property acquired after 1980 for use in a trade or business or for the production of income. Property acquired and

used for any purpose before 1981 is not recovery property. Recovery property is depreciated under ACRS. The section 179 expense deduction can be elected only for recovery property.

**Nonrecovery Property**

Nonrecovery property is also tangible depreciable property. It must have a useful life of at least three years. It includes property that does not qualify for ACRS, such as property placed in service before 1981, and property a taxpayer elects to exclude from ACRS.

Tangible personal property is property (not real estate) that can be seen and touched. Principal examples include machinery, equipment and computers.

Land and land improvements, such as buildings and other permanent structures and their components, do not qualify. Air-conditioning or space-heating units that are placed in service

after September 1978 are not included unless the units are acquired under a contract that was binding on and after October 1, 1978. Buildings, swimming pools, paved parking areas, wharves and docks, bridges and fences, and similar property are not tangible personal property.

All business property, other than structural components, that is contained in or attached to a building is tangible personal property Local law does not determine whether property is tangible personal property. Some property that is tangible personal property under local law may not qualify for investment credit. Some property that is real property under local law, such as fixtures, can qualify for investment credit.[24] Assets such as grocery store counters, printing presses, and neon and other signs normally qualify as tangible personal property. A car or truck used in business also qualifies.

## Leased Property

Property that is leased rather than purchased qualifies for the investment credit if the owner elects to pass the credit to the leases and if the property is considered qualifying new property both to the lessor and lessee. A lessor cannot pass the credit to the lessee.[25]

## Allowable Credit

The amount of investment in qualifying property that is eligible for the investment credit depends on the class of property for recovery property under ACRS or on the useful life of nonrecovery property. Used property is subject to a limitation. The amount of credit allowable against the tax in any year is limited, but any excesses may be carried back or carried over.

The credit allowable is the sum of the investment credit carryovers, plus the current year's regular investment credit, plus the current year's business energy credit, plus investment credit carrybacks to the current year.[26] The regular investment credit is ten percent of the investment eligible for the credit.[27]

The regular investment credit is limited to tax liability or the amount of the tax in excess of $25,000, whichever is less.[28]

**Example One:** Tax liability for 1983, before credits, is $100,000. The maximum investment credit is $88,750, determined as follows:

| | |
|---|---|
| Tax liability before credit | $100,000 |
| Less | 25,000 |
| | $ 75,000 |

$25,000 + 85% (75,000) = $88,750

**Example Two:** Tax liability for 1983, before credits, is $21,463. The maximum investment tax credit that can be taken is $21,463, the amount of the tax liability.

For married persons filing separate returns, each spouse figures the limit separately. The regular credit is limited for each spouse to the lesser of the income tax liability, as adjusted, shown on that spouse's separate Form 3468, or to $12,500 plus 85 percent of the tax that is more than $12,500. However, if one spouse has no qualifying investment or no unused credit, the spouse having the investment or unused credit may use the entire $25,000 plus 85 percent of the tax that is more than $25,000.[29]

A controlled group of corporations may annually divide the $25,000 among its members in any way the members choose.[30]

## Amount Eligible

The amount of the investment in qualifying property that is eligible for the credit depends on the class of property for recovery property under ACRS or on the useful life of nonrecovery property . The useful life is determined at the time the property is placed in service.

## Recovery Property

If the section 179 expense deduction is elected, the investment in qualifying recovery property is first reduced by that amount.[31]

For recovery property that is three-year class property, 60 percent of the investment (after reduction by the section 179 expense deduction, if elected) is eligible for the credit. All of the investment (after reduction for the section 179 expense deduction, if elected) that is five-year class or ten-year class property is eligible for the

credit. Most property placed in service after 1980 will be recovery property. If the property does not qualify as recovery property, it may qualify as nonrecovery property.

**Example One:** A company purchased computer equipment for $18,000 in 1984. The property qualifies as three-year recovery property, and the company elects the Section 179 expense deduction. The allowable investment tax credit would be $630, determined as follows:

| | |
|---|---|
| Cost | $18,000 |
| Less Sec. 179 expense deduction | 7,500 |
| | $10,500 |
| Amount qualifying for the credit | |
| (60% of $10,500) | $ 6,300 |
| Multiplied by tax credit percentage | 10% |
| Investment tax credit | $ 630 |

For three year property, the basis remaining after the Section 179 deduction must be reduced by 40 percent. The allowable investment tax credit is 10 percent of the remainder.

**Example Two:** A company purchases computer equipment for $25,000 in 1986. The property qualifies as five-year recovery property, and the company elects the Section 179 expense deduction. The allowable investment tax credit would be $1,500, determined as follows:

| | |
|---|---|
| Cost | $25,000 |
| Less Sec. 179 expense deduction | 10,000 |
| | $15,000 |
| Multiplied by tax credit percentage | 10% |
| Investment tax credit | $ 1,500 |

No 40 percent reduction need be made for property other than three-year recovery property.[32]

**Nonrecovery Property**

Property with a useful life of less than three years is not eligible for the credit. Only one-third of the investment in qualifying property with a useful life of at least three years but less than five years is eligible for the credit.

Two-thirds of the amount invested is eligible for the credit if the property has a useful life of at least five years but less than seven years. The full investment is eligible for the credit if the property has a useful life of at least seven years.[33]

**Example**: A company acquires nonrecovery property qualifying for the investment tax credit for $12,000.

(a) If the property had a useful life of at least three years but less

than five years, the amount of the allowable investment tax credit would be $400 ($12,000 x 33 1/3% x 10%).

(b) If the property had a useful life of at least five years but less than seven years, the amount of the allowable investment tax credit would be $800 (12,000 x 66 2/3% x 10%).

(c) If the property had a useful life of at least seven years, the amount of the allowable investment tax credit would be $1,200 ($12,000 x 100% x 10%).

**Basis Reduction**

Beginning after 1982, the basis of the property upon which investment tax credit is taken must be reduced by 50 percent of the allowable investment tax credit.[34] However, this adjustment can be ignored if the taxpayer elects to take an investment tax credit that is two percentage points lower than the amount that would otherwise be available.[35]

**Example One:** Five year recovery property is acquired in 1983 at a cost of $40,000. The allowable investment tax credit is $4,000, determined as follows:

| | |
|---|---|
| Cost | $40,000 |
| Multiplied by tax credit | 10% |
| Investment tax credit | $ 4,000 |

The basis of the property for depreciation must be reduced by 50 percent of the investment credit.

| | |
|---|---|
| Cost | $40,000 |
| Less 50% of $4,000 | 2,000 |
| Depreciable basis | $38,000 |

**Example Two:** Five year recovery property is acquired in 1983 at a cost of $40,000. The company elects to take an investment credit that is two percentage points less than the maximum allowable

in order to prevent the property's depreciable basis from being reduced. The investment tax credit taken will be $3,200.

| | | |
|---|---|---|
| Cost | | $40,000 |
| Multiplied by tax credit percentage | | 8% |
| | | $ 3,200 |
| Depreciable basis | $40,000 | |

## Investment Tax Credit and Depreciation

**Example:** Assume that software is acquired on January 5, 1983 and that ther Accelerated Cost Recovery System depreciation table for 5 years is used. Taxable income before depreciation is $3,000,000 for each of the five years, and the tax rate is 40%. The investment tax credit and depreciation computations for each of the

five years would be computed as follows:

ACRS Five Year Depreciation Table

| Year | Applicable Percentage |
|---|---|
| 1 | 15% |
| 2 | 22 |
| 3 | 21 |
| 4 | 21 |
| 5 | 21 |

Tax Rate 40%
ITC 10%
Placed in service after 1982 (1-5-83)

First Year (year placed in service)

ITC $100,000 cost x 10% = $10,000 ITC

| | |
|---|---|
| Basis of property | $ 100,000. |
| Less: 1/2 ITC | 5,000. |
| Adjusted basis | 95,000. |

| | | |
|---|---|---|
| Taxable income before depr. | | $3,000,000. |
| Depr. expense($95,000 x 15%) | | 14,250. |
| Taxable income after depr. | | 2,985,750. |
| Tax(40%) | $1,194,300 | |
| Less: ITC | 10,000 | 1,184,300. |
| Net income | | $1,801,450. |

Second Year

| | |
|---|---|
| Taxable income before depr. | $3,000,000. |
| Depr. expense($95,000 x 22%) | 20,900. |
| Taxable income after depreciation | $2,979,100. |
| Tax (40%) | 1,191,640. |
| Net income | $1,787,460. |

Years 3, 4 and 5

| | |
|---|---|
| Taxable income before depr. | $3,000,000. |
| Depr. expense ($95,000 x 21%) | 19,950. |
| Taxable income after depr. | 2,980,050. |
| Tax (40%) | 1,192,020. |
| Net income | $1,788,030. |

**Used Property Limitation**

The cost of used property that may be considered in investment tax credit calculations is limited to $125,000 a year for property placed in service in tax years 1982, 1983, or 1984, and $150,000 per year thereafter.[36]

**Example:** A calendar year taxpayer acquires computer equipment qualifying as five year recovery property in 1985 at a cost of $400,000. Of this amount, $170,000 represents used property. The amount of the purchase that is eligible for the investment tax credit is $380,000 ($230,000 new property and $150,000 used property).

**At Risk Limitation**

The investment tax credit may only be taken on the amount of qualified property that is at risk.[37] The at-risk limit applies to new or used property qualifying for the investment credit that was placed in service after February 18, 1981, in most activities carried on as a trade or business or for the production of income. In computing the investment credit for property covered by the limit, the basis of the property for the purpose of the qualified investment in the property cannot exceed the amount at risk for that property at the end of the tax year in which the property is placed in service. A taxpayer is considered at risk for property to the extent of the total cash paid, the unadjusted basis of property given up, and certain amounts

borrowed to acquire the property, if the taxpayer is personally liable for the repayments, or if the borrowings are secured by property other than property used in the activity.

### Unused Credit Carrybacks and Carryovers[38]

An unused credit exists if the sum of the investment credit carryovers to the tax year plus the credit allowable for the tax year is more than the limit, discussed earlier. The unused credit to the extent it is from the credit allowable for this tax year, may be carried back to the three prior tax years, and the balance still unused in those years may be carried over to the 15 following tax years. The unused credit must be used in the earliest of these years and is used to the extent allowed as a carryback to a prior year or as a carryover to a later year.

**Carryback rule** . An unused credit carried back to a prior tax year is used to the extent that the limit for the prior year is more than the sum of:

1. The investment credit carryovers to that year, plus
2. The credit earned for the year, plus
3. The investment credit carrybacks from years prior to the year from which the credit is being carried.

**Example:** A calendar year taxpayer has $3,000 of unused investment credits for 1985 available as a carryback to 1982. His income tax for 1982 was $2,500, the investment credit for 1982 was $1,000, and the unused credit carryback from 1984 was $1,000. The unused credits for 1985 that can be used in 1982 are limited to $500, the amount that the 1982 income tax ($2,,500) is more than the sum of the 1982 investment credit ($1,000) plus the 1984 investment credit carryback ($1,000).

**Carryover rule.** An unused credit carried over to 1985 is used before a credit for 1985 to the extent the unused credit is not more than the limit. Credits earned for 1985 are then used in the amount that the limit is more than the carryovers from 1984 and prior years.

**Example:** A calendar year taxpayer has an investment credit of $1,200 for 1985. His income tax is $1,500 for 1985, and there is $500 of investment credit earned carried over from 1984. The unused credit from 1984 is first used to the extent of the 1985 tax. Then the 1985 credit is used to the extent of the excess $1,000 ($1,500 - $500).

## Investment Credit Recapture[39]

If property upon which the investment tax credit was claimed in a prior year is disposed of, some or all of the credit may have to be recaptured. For recapture on recovery property, the credit recaptured is computed by multiplying a recapture percentage by the original

investment credit taken. The result of this computation is the amount of the recapture. The following table provides percentages for figuring the recapture of investment credit.

| Recovery property disposed of or ceasing to qualify within | The recapture percentage: For 5, 10 or 15 year property | For 3 year property |
|---|---|---|
| First full year | 100 | 100 |
| Second full year | 80 | 66 |
| Third full year | 60 | 33 |
| Fourth full year | 40 | 0 |
| Fifth full year | 20 | 0 |

If nonrecovery property is disposed of or ceases to be qualifying property before the end of the estimated useful life used in computing the credit, some of the credit may have to be recaptured. Nonrecovery property is property placed in service before 1981 or property placed in service after 1980 that does not qualify for ACRS. The credit must be recomputed using an applicable percentage based on the actual useful life instead of the estimated useful life used originally in computing the investment eligible for the credit.

For both recovery and nonrecovery property, the amount of unused credits carried back or carried over to any other tax year that is affected by the decrease in the credit allowed due to recapture must be computed. The credit must be recomputed based on the actual amount of time the property was in service. If the recomputed credit is less than the credit that actually decreased the tax liability for the year the asset was placed in service as well as for any carryback or carryover year, the tax must be increased, in the year of disposal, by the excess of the credit allowed for all affected years over the recomputed credit.

**Example One:** In May, 1981, two new machines were purchased for $6,000 and $5,000. The machines are five-year recovery property. The 1981 tax return showed an investment credit of $1,100, against an income tax liability, as adjusted, of $1,500. In December, 1982 the $6,000 machine was sold.

Since the machine was sold within the second full

year after it was placed in service, $480 (80% of $600) of the original investment credit must be recaptured. The allowable investment credit is only $120, and $600 was originally taken (10% of $6,000), so the tax liability increase by $480.

**Example Two:** On September 1, 1979, three new machines were acquired at a cost of $2,000,, $3,000 and $5,000, respectively. Each machine had an estimated useful life of ten years, and each was placed in service immediately. In the 1979 tax return, the full $1,000 tax credit (10% of $10,000) was claimed against a tax of $1,300.

On October 1, 1982, the machine costing $3,000 was sold. Since that machine was held more than three years but less than five years, the recomputed investment eligible for the credit is $1,000 (1/3 of $3,000) and the recomputed credit

for that machine is $100 (10% of $1,000). The tax liability resulting from the sale of the machine increases by $200, the excess of the $300 originally claimed (10% of $3,000) over the recomputed $100 (10% of $1,000) allowable.

**Example Three:** The facts are the same as in Example 2, except that the income tax for 1979 was only $100. There was no income tax for 1976-1978, but there was a $500 tax each year for 1980 and 1981. The original credit for 1979 ($1,000) was claimed as follows: $100 for 1979; $500 for 1980; and $400 for 1981.

Had the actual instead of the estimated useful life been used, the investment eligible for the credit would have been $8,000, and the credit for 1979

would have been $800. The amount that must be added to the 1982 tax, the $200 excess of the credit claimed over the recomputed credit, is determined as follows:

| Year | Credit Allowed | Recomputed Credit | Excess Credit |
|---|---|---|---|
| 1979 | $ 100 | $ 100 | $ -0- |
| 1980 | 500 | 500 | -0- |
| 1981 | 400 | 200 | 200 |
| | $ 1,000 | $ 800 | $ 200 |

**Example Four:** The facts are the same as in Example 3, except that in February 1982, a new machine qualifying as five-year recovery property costing $10,000 was placed in service. The income tax for 1982 is $900. The excess for 1982 of the credit earned over the tax, $100 ($1,000 - $900), is an

unused credit carryback to 1979.

If the actual instead of estimated useful life had been used, the investment credit for 1979 would have been $800. The amount carried to 1980 is $800 ($700 carried over from 1979 and $100 carried back from 1982). The amount carried to 1981 is $300 (200 carryover from 1980 and $100 carryback from 1982). The amount that must be added to the 1982 tax, the $100 excess of the credit claimed over the recomputed credit, is determined as follows:

| Year | Credit Allowed | Recomputed Credit | Exces Credit |
|---|---|---|---|
| 1979 | $ 100 | $ 100 | $ -0- |
| 1980 | 500 | 500 | -0- |
| 1981 | 400 | 300 | 100 |
| | $1,000 | $ 900 | $ 100 |

## THE RESEARCH CREDIT

As a general rule, business expenditures to develop or create an asset which has a useful life that extends beyond the current taxable year, such as expenditures to develop a new consumer product or to improve a production process, must normally be capitalized and cannot be deducted in the year paid or incurred. Such product development costs are usually recovered only on disposition or abandonment of the asset, or through depreciation or amortization deductions taken over the useful life of the asset.

Internal Revenue Code Section 174, however, permits a taxpayer to elect special tax accounting methods for certain research or experimental expenditures which are paid or incurred during the taxable year in connection with the taxpayer's trade or business. Under Section 174, a taxpayer may elect to deduct currently the amount of qualified research or experimental expenditures or to deduct these expenditures ratably over the useful life of the property or a period of sixty months, whichever, is less. A taxpayer may choose either method of deduction treatment so long as he is

consistent. Furthermore, this special method of tax accounting for research or experimental expenditures does not have to be consistent with the method the taxpayer uses to compute his income in keeping his books. Thus, a taxpayer may, for tax purposes, elect to deduct currently the amount of research or experimental expenditures even if such expenses are treated as capital account charges or deferred expenses on the taxpayer's books or financial statements. Section 174 does not specifically define the "research or experimental expenditures" eligible for deduction elections although accompanying regulations define the term to mean "research and development costs in the experimental or laboratory sense."

Since 1969, the Internal Revenue Service has taken the position that taxpayers may treat costs incurred in developing new or improved computer software in a manner similar to costs incurred in product development, generally, which are deductible under Section 174. As a result, many computer services companies have elected to treat their software R &D expenses under Section 174 and either deduct those expenses currently, or where it appears more

advantageous from a tax standpoint, amortize those expenses over five years or less. The Internal Revenue Service has not, however, ever expressly stated that software development costs are within the scope of"qualified research" under Section 174.

The research credit is designed to encourage businesses to increase the amounts they spend on research and experimental activities. The credit is equal to 25 percent of the increase in research expenses for the year over average research expenses during an earlier base period.[40] The research credit can be taken for research expenditures incurred after June 30, 1981 and before January 1, 1986.[41]

## A CONTROVERSY

In 1981, concerned over the decline of this nation's research and development activities and the reluctance of many businesses to expand significantly their research investment absent tax incentives, Congress enacted a credit for increased research and experimental expenditures. The new credit (as set forth in new Code section 44 F), gives a direct reduction in bottom line tax liability for incremental increases in qualified research expenses; that is, the excess of qualifying current year expenses over average base period expenses.[42] This credit equals 25 percent of the excess (if any) of the taxable year over the taxpayer's average qualified research expenses in a base period (one year, two years, or three years).

On January 21, 1983, the Treasury Department proposed regulations[43] that, if adopted, would provide guidance for the implementation of Section 44F. Due to public outcry, the proposed regulations have been recalled for further drafting. As drafted, the proposed regulations would have set separate and more strict standards for software development than for other research

activities. This stricter standard would have precluded software expenditures from qualifying for the research credit unless the software project was virtually guaranteed to fail from the start, because operational feasibility of a program must be seriously in doubt before costs of development could be considered for the research credit. The costs associated with generating programs using standard programming techniques would not qualify for the credit.

As stated in the proposed regulations, the costs of generating programs using standard programming techniques would not qualify for the research credit even if such costs are part of a project that otherwise qualifies for the credit. For example, the research costs associated with developing a cure for arthritis would qualify for the research credit, but any software costs associated with the project would not qualify if standard programming techniques were employed. Setting a separate and higher standard for software is a radical departure from current practice, and one that violates congressional intent.

## Congressional Intent

When Congress passed P.L. 97-34, it was with the intent that computer software development costs would qualify for the research credit. According to Senator Robert Dole (R-KS):

"...wages incurred in developing new or significantly improved computer software and which presently may be treated in a manner similar to section 174 research or experimental expenditures are intended to qualify for the new research credit, provided they also meet the requirements of new section 44F which are added to the requirements of section 174, and provided they are not subject to the specific exclusions of section 44F.[44]

The House Ways and Means Committee indicated a similar intent.

"...expenditures which otherwise would qualify for the new credit are not to be disqualified solely because such costs are incurred in developing computer software, rather than in developing hardware."[45]

## Treasury Department Misinterpretation

By drafting regulations that set a separate and stricter standard for software development than for other research activities, the Treasury has misinterpreted congressional intent.[46] Sections 174 and 44F have a common definition of "research." However, certain research expenditures that qualify for the Section 174 deduction election do not qualify for the research credit. For example, research expenditures may qualify under trade or business,[47] but these same research expenditures will not qualify for the research credit unless paid or incurred in carrying on a trade or business of the taxpayer.[48] Futhermore, expenditures incurred to conduct research outside the United States may qualify for deduction under Section 174, but do not qualify for the research credit.[49] In addition, expenditures that do not qualify for deduction under Section 174 are not eligible for the research credit.[50]

The Internal Revenue Service has gone on record[51] as stating that the proposed regulations[52] are in accord with congressional intent, as that intent is recorded by the Staff of Joint Committee on Taxation.[53] Staff explanations do not constitute official legislative history, but are sometimes used as persuasive authority.[54] However, in this instance the Staff has clearly misconstrued congressional intent.

The Staff explanation was drawn from two principal sources, the House Ways and Means Committee Report[55] and the Senate Finance Committee Report.[56] These reports addressed separate and different research credit propsosals. Portions of both reports were eventually incorporated into the Economic Recovery Tax Act of 1981 ("ERTA");[57] but only after amendment and a series of compromises.

The original House proposal[58] contained a definition of "research" that was derived from the Financial Accounting Standards Board's definition of "research and development."[59] However, the FASB definition was not intended to be controlling for purposes of the research credit.[60] The House Ways and Means definition, which was

not adopted, did not contain any cross reference to Section 174 "research and experimental expenditures" in the definition of "qualified" research. Congress preferred broader language to a detailed definition and adopted the Senate version instead. Originally, the Senate proposal addressed only wage expenditures, but other costs were subsequently addressed. In the version that was finally adopted by Congress, "qualified research" was given the same general meaning as "research or experimental" in Section 174.[61]

Because the Senate version was adopted, the Ways and Means definition should not receive much weight; the House Ways and Means Committee intended to have software costs included in qualified research expenditures, and the Committee stated specifically that such costs should be included.[62]

The Ways and Means Committee clearly intended that software development costs qualify for the credit, and explicitly recognized that certain software development costs may be treated like costs incurred for product development, which generally are subject to the Section 174 deduction election.[63] The difficulty that exists with the Ways and Means interpretation of the nature and extent of software development cost treatment under Section 174 can be attributed more to a lack of understanding about the subject than to any directive narrowing the scope of the Section.

When drafting its report, the Staff of the Joint Committee on Taxation included language from the Ways and Means Committee report, but rejected the more detailed definition of research, apparently failing to realize that this language was no longer a direct reflection of Congressional intent. Using the Ways and Means Committee language was inappropriate and results in an inaccurate reflection of Congressional intent. As worded, it appears that Congress intended to have a separate and more strict standard for

computer software development than for other items qualifying for the credit when, in fact, the intent was to apply the same standard.

Relying on this language, the Internal Revenue Service is inappropriately proposing to set a separate and more strict standard for software development than for other research and development activities.[64] The only specific research and development activity discussed in detail in the proposed regulations is software development. As drafted, most software development costs do not meet the eligibility requirements for "research and experimental expenditures" and therefore do not qualify for the research credit. In the past, computer software has not been subjected to a stricter standard; this proposal therefore reflects a major shift in policy with respect to the treatment of software development costs.

Whether an activity qualifies as research or experimental is a question of fact, to be determined by the facts and circumstances in each case. The Proposed Regulation's statement[65] that "generally the

costs of developing computer software are not research or experimental expenditures within the meaning of Section 174" is overbroad and does not take particular situations into account. Furthermore, computer software development costs have been afforded tax deduction treatment under Section 174 since 1969, because "the costs of developing software...in many respects so clearly resemble the kind of research and experimental expenditures that fall within the purview of Section 174."[66] This qualification has been reinforced by subsequent Internal Revenue Service rulings.[67]

The Proposed Regulation goes on to say that "however, the term 'research or experimental expenditures,' as used in Section 174, includes the programming costs paid or incurred for new or significantly improved computer software." The term "new or significantly improved" applies only to software and not to any other research and development activity. Under the present law, it is not necessary to develop "new or significantly improved computer software" in order for the costs to qualify as research and

development expenditures. The "newness" or "significance" of an improvement has nothing to do with "costs incident to the development of an experimental or pilot model, a plant process, a product, a formula, or similar property, and the improvement of already existing property" as is required under present regulations.[68]

The regulation is too restrictive as far as denying research expenditure treatment for programs involving standard or well-known programming techniques. No examples are given of nonstandard or unknown programming techniques. It may well be that all of the programming techniques that can be developed have been developed. By the same token, all possible chemistry techniques may have already been developed. Programming is, however, only one part of the development of software. The proposed regulation seeks to exclude software development just because one component part is not new and innovative. The same requirement is not imposed on research and development activity aimed at other products and processes, and there is no justification for it in the activity of software

development.

## QUALIFYING RESEARCH[69]

Not all research qualifies for the credit. In general, it must be the kind of research for which taxpayers are allowed to deduct or amortize their expenses under other provisions of the tax law. That is, the credit applies only to research and development in the experimental or laboratory sense.

However, the credit can only be taken for research that is performed or paid for in carrying on a trade or business.[70] Such activities might include developing or improving a product, a formula, an invention, a plant process, an experimental or pilot model, or something similar.

The credit cannot be taken for any of the following activities:[71]

(1) Research performed outside the United States.

(2) Research in the social sciences or humanities.

(3) Research funded or financed by someone else whether under a contract of grant or in some other way.

(4) The ordinary testing or inspection of materials or products for quality control.

(5) Market and consumer research.

(6) Advertising or promotion expenses.

(7) Management studies and efficiency surveys.

(8) Research to find and evaluate mineral deposits, including gas and oil.

## Patents

Obtaining a patent, including making and protecting a patent application, is treated as "research" that qualifies for the credit. However, acquiring someone else's patent, or someone else's

production or process, does not qualify for the credit.

## RESEARCH EXPENSES

Only directly attributable costs of employee wages, supplies, payments to others and contract research expenses qualify for the credit.[72] If an expense does not fall into one of these categories, or if it is not for qualified research, it cannot be used when computing the credit.

**Example:** The company employs five staff programmer/analysts who work on research and development-type projects. A senior programmer/analyst supervises their work, and a secretary types their reports and letters, and answers the telephone. The wages of all seven employees can be included when computing the credit. However, no part of the wages paid to the employees who prepare salary checks for the staff, who arrange

loans for the research or who clean the building each day can be used to compute the credit.

When computing the credit, the cost of any supplies used in the research can be included.[73] All tangible property used in the research is considered supplies, except:

a. Land and improvements to land, and

b. Depreciable property.

Depreciable property can never be treated as supplies. Whether the depreciation deduction or an expense deduction can be taken on the property makes no difference.

Only 65 percent of contract research expenses can be included in the computation of the credit.[74] A contract research expense is one that is paid or incurred for research that is performed by someone else, and is distinguished from "in house" research.

## BASIC RESEARCH

A corporation can treat certain payments it makes for basic research as contract research expenses. Thus, a corporation can include 65 percent of certain amounts it provides for basic research (subject to the prepayment rule) when computing the research credit. This is in addition to any other expense it has for qualifying research.[75]

"Basic research" means any original investigation to advance scientific knowledge not having a specific commercial objective. However, basic research done outside the United States and research done in the social sciences or humanities are not included.[76]

Only corporations can compute the credit on expenses for basic research. Individuals and unincorporated businesses cannot take a credit for any payments they make for basic research. In addition, the credit on basic research expenses does not apply to:

(1) A subchapter S corporation,

(2) A personal holding company, or

(3) A corporation in which the principal business is performing services.

To be eligible for the credit, a payment for basic research must be made under a written research agreement with a qualifying organization, entered into prior to the performance of the basic research. Three kinds of organizations qualify:[77]

(1) A public or non-profit institution of higher education, such as a college, university, or vocational school.

(2) A tax-exempt organization, other than a private foundation, that is organized and operated primarily to carry out scientific research.

(3) A fund that chooses to qualify.

**Funds**: To be an organization to which a corporation can make payments for basic research that are eligible for the research credit, a fund that chooses to qualify must meet all four of the following requirements:[78]

(1) It must be organized and operated exclusively to make grants for basic research to public or non-profit institutions of higher education--that is, to colleges, universities, vocational schools, and similar institutions.

(2) It must be tax-exempt.

(3) It cannot be a private foundation.

(4) It must be set up and maintained by an organization that is itself tax-exempt and not a private foundation. This organization must have been in existence before July 10, 1981.

If a fund meets all four of these requirements, it can choose to be a qualifying organization. After it makes this choice, the payments a

corporation makes to it will be eligible for the research credit (subject to the prepayment limitation).

Another effect of the choice is that the fund will be treated as a private foundation for tax purposes, even though it is not one otherwise. However, the fund will not have to pay the excise tax that applies to investment income of private foundations.

## Making the Choice

To choose to be treated as a qualified organization, a fund must send a statement to the Internal Revenue Service center where it files its annual return, and must comply with the requirements outlined in Section 44F (e) (4).

## COMPUTING THE CREDIT

The amount of credit allowable for a tax year is 25 percent of the amount by which the qualified research expenses for the year exceed the average qualified research expenses for an earlier base period. If the qualified research expenses for the year are not more than the average qualified research expenses during the base period, there will be no credit.[79]

**Example**: In the previous three years, a corporation has incurred qualified research expenses of $3,000,000, $4,000,000 and $5,300,000. Qualified research expenses for the current year total $5,600,000. The allowable research credit for the current year is $375,000, determined as follows:

| Qualified Research Expenditures | |
|---|---|
| First year | $3,000,000 |
| Second year | 4,000,000 |
| Third year | 5,300,000 |
| | $12,300,000 |
| Base period average | $4,100,000 |
| Fourth year | $5,600,000 |
| Less: Base period average | 4,100,000 |
| Amount eligible for res. credit | $1,500,000 |
| Research credit (25%) | $375,000 |

**Base Period.** To compute research expenses for the base period, only those amounts that would qualify for the credit if spent in the current tax year can be used. These expenses include every type of expense that was discussed earlier: wages, supplies, payments to others, 65 percent of contract research expenses and, for certain corporations, 65 percent of the payments made for basic research. Generally, the base period is the last three tax years prior to the year for which the credit is computed.[80]

**New businesses:** If the company did not exist during a part of the base period, the company is treated as if it were in business but had no research expenses during that time period.

**Fifty percent limitation:** When computing the credit on qualified research expenses for the year, the base period research expenses must first be subtracted. However, the base period research expense cannot be less than fifty percent of the research expenses for the year.[81] If they are less than fifty percent, an amount that is at least fifty percent must be substituted. In other words, the credit is restricted to one-half of the research expenses that qualify for the credit each year. This limit applies every year, even if there were no research expenses during the base period. It applies to all businesses, including new ones.

**Example:** A calendar year corporation commences business on January 1, 1982. It has $30,000 in research expenses that qualify for the credit in 1982, $30,000 in 1983 and $300,000 in 1984. The base period for computing the credit for 1984 is the preceding three years, 1981, 1982 and 1983. The actual base period research expenses are $20,000, the average of the expenses for 1981 ($0), 1982 ($30,000) and 1983 ($30,000). Because $20,000 is less than 50 percent of the research expenses for 1984 ($300,000), the base period research expense figure used to compute the credit must be at least $150,000 (50 percent of $300,000). In other words, the credit can be computed on no more than half of the $300,000. The maximum credit for the 1984 will be $37,500 (25 percent of $150,000).

**Short tax years.** For tax years of less than twelve months, the qualified research expenses for that year are determined on an annual basis.[82]

## Using the credit

The credit is used to reduce, dollar for dollar, the amount of tax that must be paid. However, there are limits on the amount of the credit that can be claimed each year. If a portion of the credit cannot be used in the year earned, it can generally be carried back or forward and used to reduce taxes in other years.

## Limitations

The amount of research credit taken in any tax year cannot be more than the income tax liability for that year. However, for purposes of computing this limitation, most other taxes, including the corporate minimum and alternative minimum tax, accumulated earnings tax and personal holding company tax should not be included. Before using the

research credit to reduce tax liability, most other credits must first be taken into account.[83]

**Passthrough limit.**[84] A special limit applies if the credit that was earned by the business is taken on the taxpayer's tax return. This limitation can occur if the taxpayer is a:

(1) Sole proprietor.

(2) Partner.

(3) Shareholder is a Subchapter S corporation, or

(4) Beneficiary of an estate or trust.

Partnerships, Subchapter S corporations, and estates and trusts pass through the credits they earn to their partners, shareholders and beneficiaries.

To compute the limitation, first determine how much of the income tax liability is due to the portion of taxable income that

comes from the business that earned the credit. The credit cannot be taken for more than this amount of tax. This amount is then compared to the amount that was computed to be the tax liability limitation. The smaller of the two is the maximum amount of research credit that can be taken for the year.

**Carrybacks and carryovers.**[85] If a portion or all of the research credit cannot be used because of these limitations, the part not used in the current year can be carried back three years and carried forward fifteen years, and subtracted from the tax in those years. Thus, a taxpayer may be able to claim a refund of all or part of the taxes paid in the prior three years. The credit must first be carried back to the earliest of the last three tax years, even if the research credit was not in effect that year. If it is not all used up in that year, the remainder is next carried to the second earliest tax year and so on. Any remaining credit is then carried forward to future tax years. The credit can be carried forward for fifteen years or until it is all used up, whichever comes first.

If, because of a carryover or carryback, research credits from more than one year are used in the same year, they must be used in the following order:

(1) First, the credit earned in that year must be used.

(2) Next, the credits being carried to that year must be used, beginning with the one from the earliest year.

The total amount of the credit taken in a single year, including carryovers and carrybacks, cannot be more than the tax liability limitation or the passthrough limitation for that year.

## BUSINESS UNDER COMMON CONTROL[86]

Generally, the research credit for a group of trades or businesses under common control is computed as if the group were a single business. One credit is computed for the entire group and then divided among the members. The division is based on each member's share of the total increase in the group's research expenses.

The rules used to decide whether the trade or business is under common control for computing the research credit are the same as the rules that are used to decide if there is common control for computing the targeted job credit. (Another tax credit used to provide an incentive to hire and train chronically unemployed individuals). A business can be under common control with one or more other businesses whether it is a corporation, a partnership, a sole proprietorship, an estate, or a trust.

**Computing the credit.** If the trade or business is under common control, the following steps are taken to compute the research credit:

(1) Add up the research expenses for the tax year for all members of the controlled group.

(2) Add up the base period research expenses for all members of the group.

(3) Subtract (2) from (1). The result is the increase in the entire group's research expenses.

(4) Compute the credit for the group. This will be 25 percent of the difference in step (3). However, if the amount from step (2) is less than 50 percent of the amount from step (1), the group's credit is 25 percent of an amount equal to one half of (1).

(5) Divide the group credit from step (4) among the members of the group based on each member's share of the amount from step (1).

**Example:** Alpha Company has two subsidiaries, Beta Enterprises and Delta Manufacturing. The following table shows the base period research expenses and the research expenses that qualify for the credit during the current tax year for each company.

| Company | Base period (average) | Current year expenses | Increase (decrease) |
|---|---|---|---|
| Alpha | $60,000 | $120,000 | $60,000 |
| Beta | 30,000 | 20,000 | (10,000) |
| Delta | 40,000 | 70,000 | 30,000 |
| | $130,000 | $210,000 | $80,000 |

The group's total increase in research expenses is $80,000 ($60,000 increase by Alpha plus $30,000 increase by Delta minus $10,000 decrease by Beta). Therefore, the group's allowable credit is $20,000 (25 percent of $80,000). Only Alpha and Delta actually

increase their research expenses, so all of the group's credit is divided between them. Because Beta's expenses did not increase, it cannot share in the credit. The individual increases by Alpha and Delta total $90,000. Therefore, Alpha claims 60/90 of the total credit ($13,333) and Delta claims 30/90 ($6,667).

## PASSTHROUGH ENTITIES

A Subchapter S corporation divides its credit among its shareholders at the end of its tax year. The shareholders then claim their shares of the credit on their own income tax returns.

Estates and trusts divide the credit among themselves and their beneficiaries. The division is made in the same way that the division is made for income. Partnerships must divide their allowable credit among the partners.

## ACQUISITIONS AND DISPOSITIONS

If, after June 30, 1980, a business or part of a business is acquired or disposed of, special rules must be used to determine the research credit. These rules do not apply if there is only a transfer of some assets used in a trade or business. The part of the business that is transferred must be at least large enough to be operated as a viable business.

**Acquisitions.**[87] If a business or portion of a business is acquired, then for purposes of computing the credit for a tax year ending after the date of acquisition, the amount of research expenses for the period before the acquisition must be increased. The previous owner's research expenses that are attributable to the part of the business acquired must be added. This adjustment is made when computing both base period research expenses and research expenses for the current year.

**Dispositions.**[88] If a portion of the trade or business is disposed of, then for purposes of computing the credit for a tax year ending after the date of disposition, the amount counted as research expenses for the period before the transfer must be decreased. The portion of the research expenses that are attributable to the disposal must be subtracted. However, this decrease can be made only if the new owner is given the information needed to make the increase discussed in the previous paragraph.

If this decrease is made and the new owner is reimbursed for research performed for the previous owner within three tax years following the year of disposition, some or all of this decrease must be added back. If this reimbursement is made, a taxpayer may increase the qualified research expenses for the base period for the tax year when the reimbursement is made. The smaller of the following amounts must be added back:

(1) The amount of the original decrease made for the base period; or

(2) The amount of the reimbursement multiplied by the number of years in the base period.

This rule applies only when computing the base period research expenses for the year of the reimbursement and only if the reimbursement is made within three years of the transfer.

The adjustment required by this rule must be made even if another member of the controlled group reimburses the new owner, and even if another member of the new owner's controlled group is the one reimbursed.

## HOW TO TAKE THE CREDIT

Form 6765, Credit for Increasing Research Activities, may be used to determine the credit. The form may be attached to the income tax return. In addition to filing Form 6765, Subchapter S corporations, estates, trusts and partnerships must also complete Schedule K-1 to show how the credit was divided among their shareholders, beneficiaries or partners.

## A Note on Depreciation

Depreciation is an almost bottomless topic that has a bottom made of shifting sand. Almost every tax act that has been passed in recent years has addressed the topic of depreciation, and the tax act currently under consideration will in all likelihood make some changes to the current rules as well. However, a few points should be made at this time, because depreciation rules have an effect on software accounting.

In 1981, a major change took place in the method of computing depreciation for tax purposes. With the passage of the Economic Recovery Tax Act of 1981 (ERTA) the matching concept, as applied to depreciation for tax purposes, was thrown out the window. Buildings which might still be depreciated over forty or fifty years for financial accounting purposes (the matching principle still applies for financial accounting purposes) could now be written off over fifteen years using an accelerated method for tax purposes. As a result of this legislation, a deferred tax account had to be established for many companies that previously used the same method of depreciation for both book and tax purposes. This new depreciation rule, called the Accelerated Cost Recovery System (ACRS),[89] has since been modified by passage of the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), which decreased somewnat the acceleration percentage that could be used.

Prior to the passage of ERTA, a taxpayer had to estimate the useful life of each depreciable asset and then argue with the IRS that the lives chosen were proper under the circumstances, unless the taxpayer elected to use the asset depreciation range (ADR) system instead, in which case the useful tax lives of a wide variety of assets are listed.[90] Making this election would eliminate arguments but would also lock the taxpayer into a tax life that may be too conservative. As a result, many taxpayers decided not to make the election to be governed by the ADR rules.

With the passsage of ERTA the tax lives of personal property were arbitrarily set at either three, five or ten years,[91] depending on category. Real property now has a tax life of fifteen years. The tax lives under ERTA are frequently shorter than the tax lives under the old method where useful economic life was a consideration. For example, computer hardware has a tax life of either three or five years, whereas the ADR midpoint life is six years, with a lower and upper range of five and seven years, respectively.[92]

Which computer equipment qualifies under the three year category, and which qualifies under the five year category, is not entirely clear. Apparently, computer equipment "used in connection with" research and experimentation qualifies as three year recovery property. But computer equipment used in this category for only a portion of total available time might not qualify for three year treatment. If "used predominantly"[93] for research and experimentation, the equipment would have to be used for such purposes more than 50 percent of the time in order to qualify for three year treatment. But if "substantially all the use" [94] is for research and experimentation, such use must be 80 percent or more of total use. Does the phrase "used in connection with" mean for "substantially all the use" or only for "used predominantly?" The interpretation chosen will determine whether computer equipment used for research and experimentation for a portion of total available time will qualify as three year or five year recovery property. The Final Regulations will in all likelihood clarify this issue, but not before the end of 1986.

## FOOTNOTES

[1]The investment tax credit rules are covered in Sec. 38 and 46 through 50, as well as Reg. 1.38 and Regs. 1.46 through 1.50. Applicable court cases are summarized in Appendix C. All references are to the Internal Revenue Code of 1954, as amended, and Regulations thereunder.

[2] Rev. Proc. 69-21 C.B. 303, T.I.R. No. 1021, October 7, 1969. See Appendix D.

[3] Sec. 174; Reg. 1.174.

[4] Rev. Rul. 71-177, 1971-1 C.B. 5. See Appendix D.

[5] Rev. Rul. 71-248, 1971-1 C.B. 55. See Appendix D.

[6] See Chapter 13 dealing with state taxes, and Appendix C.

[7] Comptroller of the Treasury v. Equitable Trust Company, 464 A.2d 248 (Md., 1983). See Case No. 12, Appendix C.

[8] Chittenden Trust Company v. King, 465 A.2d 1100 (Vt., 1983). See Case No. 9, Appendix C. Also see, Citizens and Southern Systems, Inc. v. South Carolina Tax Commission, South Carolina Supreme Court Opinion No. 22024 (January 10, 1984).

[9] Hancock v. State, 1 C.L.S.R. 562.

[10] 63 T.C. 327 (1974).

[11] Sec. 341; Reg. 1.341.

[12] Walt Disney Productions v. United States (Disney I), 327 F.Supp. 189 (C.D. Cal. 1971), aff'd. as modified, 480 F.2d 66 (9th Cir. 1973), 32 AFTR2d 73-5094, cert. denied, 415 U.S. 934, 94 S. Ct. 1451, 39 L. Ed.2d 493 (1974). The holding in this case has since been codified in Sec. 48(k) as a result of the Tax Reform Act of 1976. However, the rationale of this case provides strong support for the tangibility of computer software. See Case No. 42, Appendix C.

[13] Walt Disney Productions v. United States (Disney III), 549 F.2d 576 (9th Cir. 1977), 39 AFTR2d 77-796. See Case No. 43, Appendix C.

[14] These three cases were tied together: Bing Crosby Productions, Inc. v. United States; Sussex Pictures, Inc. v. United States; and MCA, Inc. and Universal City Studios, Inc. v. United States, 588 F.2d 1293 (9th Cir. 1979), 79-1 U.S.T.C. 9150. See Case No. 3, Appendix C.

[15] 588 F.2d at 1299, 79-1 U.S.T.C. 9150 at 86, 164.

[16] 551 F.2d 599, 39 AFTR2d 77-1383 (5th Cir. 1977).

[17] 407 F.Supp. 1326.

[18] Walt Disney Productions v. United States, 327 F.Supp. 189 (C.D. Cal. 1971), aff'd. on appeal, 480 F.2d 66 (9th Cir. 1973), cert. denied, 415 U.S. 934, 94 S. Ct. 1451, 39 L.Ed.2d 493 (1974).

[19] S. Rep. No. 92-437, 92d Cong., 1st Sess. 34, 1971 U.S. Code Cong. and Adm. News, pp. 1918, 1941 (1971).

[20] See also Reg. 7.48-1(a).

[21] Defined in Sec. 48(a). See also Secs. 46(c) and (d), Reg. 1.48-1.

[22] Texas Instruments, Inc. v. United States, 407 F.Supp. 1326 (N.D. Tex. 1976), rev'd. 551 F.2d 599, 39 AFTR2d 77-1383 (5th Cir. 1977). See Case No. 38, Appendix C.

[23] Sec. 168(c).

[24] In Bank of America National Trust and Savings Association v. County of Los Angeles, 224 Cal. App.2d 108, 36 Cal. Rptr. 413 (1964), the California court held that a computer system was real property for real estate tax purposes. This ruling would not preclude the bank from classifying the computer system as tangible personal property for investment tax credit purposes. See Case No. 2, Appendix C.

[25] Sec. 48(d); Reg. 1.48-4.

[26] Sec. 46(a)(1); Reg. 1.46-1(c).

[27] Sec. 46(a)(2); Reg. 1.46-1(g)(2).

[28] Sec. 46(a)(3); Reg. 1.46-1(h).

[29] Sec. 46(a)(5); Reg. 1.46-1(o).

[30] Sec. 46(a)(6); Reg. 1.46-1(p).

[31] Sec. 179. The amount that may be taken in 1982 or 1983 is $5,000. The amount increases to $7,500 in 1984 and to $10,000 in 1986 and thereafter. See Sec. 179(b) and Sec. 179(d)(9).

[32] Sec. 46(c)(7)(B).

[33] Sec. 46(c)(2); Reg. 1.46-3(b).

[34] Sec. 48(q)(1).

[35] Sec. 48(q)(4).

[36] Sec. 48(c); Reg. 1.48-3.

[37] Sec. 46(c)(8)(B).

[38] Sec. 46(b); Reg. 1.46-2.

[39] Sec. 47(a)(1); Reg. 1.47-1.

[40] Sec. 44F(a). Also see Sec. 174; Reg. 1.174. P.L. 97-34, the Economic Recovery Tax Act of 1981, Section 221 added IRC Section 44F.

[41] P.L. 97-34, Sec. 221(a). This period may be extended by pending legislation.

[42] P.L. 97-34, Sec. 221(a).

[43] Treasury Department. "Credit for Increasing Research Activity." 26 CFR Part 1. Published in the Federal Register Vol. 48, No. 15, Friday, January 21, 1983, 2790-2800. See footnote 3.

[44] 127 Cong. Rec. S 8109 (daily ed. July 21, 1981).

[45] H.R. Rep. No. 201, 97th Cong., 1st Sess. 114 (1981).

[46] Proposed Regulation 1.174-2.

[47] Sec. 174(a)(1).

[48] Sec. 44F(a)(1).

[49] Sec. 44F(b)(1).

[50] Proposed Regulation 1.44 F-4.

[51] 48 Fed. Reg. at 2791.

[52] Proposed Regulation 1.174-2.

[53] See Staff of the Joint Committee on Taxation, General Explanation of the Economic Recovery Tax Act of 1981, 117-137 (issued December 29, 1981).

[54] H.R. Rep. No. 215, 97th Cong. 1st Sess. 224 (1981).

[55] H.R. Rep. No. 201 at 109.

[56] S. Rep. No. 144, 97th Cong. 1st Sess. 75 (1981).

[57] P.L. 97-34, Sec. 221, 95 Stat. 110, 241-247 (1981).

[58] "Tax Incentive Act of 1981," H.R. 4242, 97th Cong. 1st. Sess. Sec. 241.

[59] Financial Accounting Standards Board, Statement No. 2, "Accounting for Research and Development Costs," (Stamford: FASB, 1974), paragraph 8.

[60] H.R. Rep. No. 201 at 113 n. 3.

[61] Sec. 44F(d).

[62] H.R. Rep. No. 201 at 114.

[63] Ibid.

[64] Proposed Regulation 1.174-2(a)(3) and (4).

[65] Proposed Regulation 1.174-2(a)(3).

[66] Rev. Proc. 69-21, 1969-2 C.B. 303 (See Appendix F).

[67] See, e.g., LTR 8136024, which held that costs of developing software can be deducted under Section 174.

[68] Regulation 1.174-2.

[69] Sec. 44F(b); Reg. 1.174-2(a)(1). On January 21, 1983 (48 Fed. Reg. 2790), proposed regulations were issued that, if adopted, would place more stringent restrictions on software than on other types of research and experimental expenditures. As a result of a large public outcry, the proposed regulations have been withdrawn for further drafting. See George J. Yost, "A Survey of Tax Issues Affecting Software Developers and Users." The Tax Executive, January, 1984,

120-125, 128-133; Arthur Andersen & Company, "Research and Development." Washington Tax Letter, September 23, 1983, 3; Arthur Young & Company, "Proposed Regulations on Credit for Increasing Research Activity-Internal Revenue Code Sections 44F and 174." Letter addressed to Commissioner of Internal Revenue dated March 25, 1983; Arthur Young & Company, "Proposed Treasury Regulation Section 1.174-2(a)(3) and (4)." Letter addressed to Commissioner of Internal Revenue dated March 16, 1983; John Barres, "Tracking the Accounting and Taxation Methods of the Computer Software Industry." MBA thesis, New York University, 1984; R.J. Barry, S. Goldstein and T.M. Brehmer, "Proposed Regs. on the Credit for Research and Experimental Expenditures: An Analysis." The Journal of Taxation, August, 1983, 76-83; Robert L. Black, "The Taxation of Computer Technology." The Tax Advisor, February, 1983, 84-97; Computer and Business Equipment Manufacturers Association, "Computer Industry Leaders Declare IRS Violating Congressional Intent on Software Regulations." Industry News, April 7, 1983; "Computer-Software Developers Find Hope in the Research-Credit Dispute." Wall Street Journal, April 27, 1983, 1; "Computer Tax Rules Assailed." New York Times, April 25, 1983, D2; Gerald Damsky, "Integration of the Section 44F Research Tax Credit into the Research Investment Venture" Taxes, February, 1983, 127-136; James S. DiBernardo, "The Taxation of High Technology." Taxes, December, 1983, 813-828; Robert Feinschreiber, "Defining Research for Purposes of the Research Credit." The Tax Executive, January, 1983, 159-166; IRS Proposals on R&D are Inadequate High Tech Incentive." Entrepreneur, August, 1983, 32; Machinery and Allied Products Institute, "Research and Experimentation: MAPI Presentation to Treasury Department and Internal Revenue Service Urges Liberalization of Research Tax Credit Proposals with Respect to Independent Research and Development of Government Contractors, Computer Software Development, and Research in Other Contexts." Executive Letter, May 2, 1983; Gary Silversmith, "Tax Credit for Increasing Research Activities." American Bar Association Journal, January, 1983, 90-93; Michael G. Wasserman, "Section 174 and Computer Software Development." Taxes, August, 1983, 506-512; Bryan Wilkins, "IRS Seeks to Eliminate Software Tax Credits." Management Information Systems Week, April 20, 1983, 20.

[70] Sec. 44F(b)(1); 174(a)(1); Reg. 1.174-2(a)(1).

[71] Sec. 44F(d); Reg. 1.174-2(a)(1).

[72] Sec. 44F(b)(2).

[73] Sec. 44F(b)(2)(C).

[74] Sec. 44F(b)(3)(A).

[75] Sec. 44F(e)(1).

[76] Sec. 44F(e)(2).

[77] Sec. 44F(e)(1).

[78] Sec. 44F(e)(4).

[79] Sec. 44F(a).

[80] Sec. 44F(c)(2)(A).

[81] Sec. 44F(c)(3).

[82] Sec. 44F(f)(4).

[83] Sec. 44F(g)(1).

[84] Sec. 44F(g)(1)(B).

[85] Sec. 44F(g)(2).

[86] Sec. 44F(f)(1)(B)87

[87] Sec. 44F(f)(3)(A)

[88] Sec. 44F(f)(3)(B).

[89] Sec. 168.

[90] Reg. 1.167(a)-11.

[91] Sec. 168(c)(2).

[92] See Rev. Proc. 77-10, 1977-1 C.B. 548; Rev. Proc. 80-15, 1980-1 C.B. 618.

[93] Reg. 1.48-1(g)(1)(i).

[94] Sec. 170(e)(4)(B)(4).

# CHAPTER 15

# SUMMARY OF PART III

Part III addressed issues relating to software taxation, both at the federal and state levels. This aspect of software accounting was first revealed to me during the course of the interviews conducted with executives of software vendor and user companies. A literature search later revealed that most of what had been written on software accounting prior to 1983 had been on the tax aspects of the subject. The interviews conducted with corporate executives led me to seek out and interview a number of attorneys who specialize in software tax litigation and consulting.

Practically every tax aspect of software accounting remains in a state of flux. At the state level, software that is sold or leased might trigger a sales or use tax, depending on the state involved, the means used to deliver the software, and whether the software is bundled with hardware. District of Columbia v. Universal Computer Associates, decided in 1972(see Case No. 18, Appendix C), was the first case to be decided in the area of software taxation. That court held that software is intangible, and therefore not subject to the District of Columbia personal property tax. A long list of

subsequently decided state court cases have used this case as precedent. These subsequently decided cases have ruled (uniformly, until 1983) that software is intangible for sales, use and property tax purposes, and is therefore not subject to state taxation. Canned, or off the shelf software may be viewed as having a somewhat different nature than custom software. Off the shelf software may at times be viewed as a product rather than a service, and some state legislatures have passed legislation that classifies off the shelf software as tangible, and therefore subject to the sales, use or property tax. Custom software, on the other hand, is often viewed both by the state courts and state legislatures as providing a service rather than a product, which makes the software taxfree.

The interviews conducted in Part I, as well as the questionnaires that were sent to software vendors and users (Chapters 3 and 6) shed additional light on software classification and taxation policies in practice. The interviews and responses to the questionnaires revealed that many companies classify the same software as tangible for federal tax purposes (so that it will qualify for the investment tax

credit) and intangible for state tax purposes, so that it will not be taxed for state purposes. Some vendors deliver software over telephone lines in order to avoid the state sales or use tax. A long list of court cases support this view, which holds that software delivered in the form of electrical impulses is intangible, but software delivered in the form of a disk or tape is tangible. Interestingly enough, financial accounting theory (Part I) does not really address the issue of tangibility. The interviews and questionnaire responses in Part I revealed that corporate controllers and chief financial officers are not really sure of how to classify software. Some companies include software expenditures in the property, plant and equipment section of the balance sheet, along with other tangible property. But many other companies place these expenditures in the "Other Asset" or intangible section of the balance sheet. However, the vast majority of companies place the cost of developing software in the income statement as an expense. Such expenditures are not listed as assets at all.

In 1983, a few cases were decided in the state courts which run counter to the previous 10 years of judicial precedent. These courts held that software is tangible and therefore subject to state taxation. In at least one of these cases the judge stated that the software would have been intangible if it had been delivered over the telephone, an observation that, if picked up by software vending companies, might lead to a change in their method of software delivery. It would be interesting to send another questionnaire to vendors to see how this decision has influenced their mode of delivery.

It is too early to tell what effect the 1983 decisions will have on the state taxation of software, but it is reasonable to assume that these cases will be cited by state revenue departments in subsequent software tax litigation. Most states have rules to govern the various possibilities, but the states are in conflict. Each state legislature and state court system has the right to establish its view, and almost all states have exercised this right, resulting in many sets of different rules to govern the taxability of software. What may be taxable in one state may be taxfree in another state, which makes life more

complicated for corporations that engage in multi-state business, but also provides numerous tax planning opportunities. As technology advances and states continue to search for new sources of tax revenue, the taxation of software changes on a state by state basis. State courts continue to hear cases on software taxation, and the decisions rendered in the future may be different than the decisions the same state court rendered in the past. State legislatures also continue to change the rules, making it difficult for businessmen to plan.

At the federal level, there are two tax inventives that may apply to software expenditures. The investment tax credit may be taken on certain software that is bundled with hardware (see Appendix D). At least one federal court (see Texas Instruments, Inc. v. United States, Case No. 38, Appendix C) has held that unbundled software also qualifies for the investment tax credit. The interviews with software vendors and users revealed that a great many supposedly knowledgeable accountants are unaware of this case, which came as a surprise. The case was decided in 1977, so they cannot use newness

as an excuse. One possible explanation for this ignorance might be the fact that chief accounting officers tend not to be knowledgeable in tax matters, but generally rose through the ranks in the financial or managerial accounting areas instead. But this explanation does not excuse the companies' tax experts, who should be aware of this case. For software user companies, the amount of software that potentially qualifies for the investment tax credit is miniscule compared to the amounts that are spent for property, plant and equipment, so it could be that many companies overlook software expenditures when computing the amount of investment tax credit to which they are entitled. Or it could be that software expenditures are expensed for book purposes, which might make them difficult for the tax accountant to trace. However, a great many companies do take the investment tax credit on at least some software, so it cannot be said that none of the companies take the credit. To make matters more interesting, there is a movement afoot in congress to repeal the investment tax credit provision, so this whole topic may soon become interesting only for historical purposes.

The other possible federal tax benefit is the credit for research and experimental expenditures. However, the rules for this credit are extremely obscure at present, and will in all likelihood not be clarified until after the 1986 election. Regulations were drafted that, if adopted in final form, would have placed a greater burden on software expenditures than on other types of research and experimentation expenditures. When the proposed regulations were published, a tremendous protest was launched by software vending companies. As a result of this public outcry, the regulations were withdrawn for further drafting. The questionnaire responses in Chapters 3 and 6 revealed that many companies do take the credit for research and experimentation on at least some software.

The tax aspects of software accounting are discussed throughout this thesis. Chapters 3 and 6 reveal the software tax policies of vendors and users. Court case briefs of the most important cases are

included in Appendix C. Applicable Internal Revenue Service pronouncements are reproduced in Appendix D. The DPMA Position Statement on Software Taxation is reproduced in Appendix E.

Chapter 13 addresses state software tax issues such as sales, use and property taxation. The material for this chapter is assembled in a more or less chronological pattern. The earlier cases are discussed before the most recent cases. This sequence makes sense, since the most recent cases rely on the precedent that was established in the older cases. The first software tax case was decided in 1972. The first software tax cases could not rely on precedent because there was none, so cases in other, related areas such as film-making, the sale of information, the Uniform Commercial Code and data processing service bureaus had to be cited instead. The final portion of the chapter provides a summary of software taxation on a state by state basis.

Chapter 14 discusses federal tax law relating to software. Included in this chapter are discussions of the investment tax credit and the credit for research and experimental expenditures, both of which will likely be changed somewhat or even repealed in the next year or so.

# PART IV

# CHAPTER 16

# CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

## Context in Which the Research Was Undertaken

Prior to 1969, companies did not account for software at all. Either they had none, or the small amount they did have was combined with hardware and accounted for as a unit. In June, 1969, all that changed, as a result of IBM's decision to unbundle. For the first time, software prices were stated separately from hardware prices.

For the next few years, accounting for software presented no problems because the amounts involved were small, both in absolute terms and as a percentage of total assets (or sales). But as more and more companies started using computers, and computer usage increased, more funds were expended for software, both in absolute terms and as a percentage of total expenditures, and accountants began to think about how to account for software.

When this study began, there was no direct or near-relevant precedent research. This study is the first to examine software accounting. Much as I tried to find other work on this subject, I was unable to do so. Almost all of the pre-1983 literature addressed only the tax aspects of software accounting, although a number of studies addressed related areas, such as film-making, record-making, research and development, bank lending decisions and stock price. So there were no guidelines as to what areas of investigation might be found fruitful/fruitless. There was a need to consider a wide range of evidence and to seek a wide range of opinions. I endeavoured not to

ignore, overlook or omit any major influence; hence, the length and modular structure of the thesis as each type of evidence was considered. Hopefully, one outcome of the research will be to provide some guidance to future researchers as to where their attention might be most usefully directed.

The software industry is one which has experienced continuous change as its technology develops and new markets are captured. It is also a business sector which is characterized by a continual flux in the composition of its membership and in the organizational structures of its members. In such a fluid situation, and in the nature of first time studies, research will inevitably be incomplete and untimely if a report is to be completed. Such a report must necessarily present a static interpretation of a dynamic situation, but hopefully it will nevertheless define the essential features of the industry, and establish the parameters for further research.

Accounting procedures are, on the whole, a function of 3 basic influences. Thus,

$$ACS = F(P, E, M)$$

Where ACS = accounting control and reporting systems
P = the principles which inform the discipline (accounting)
E = the expedience of an on-going situation
M = the manager's perceptions after the nature of the situation and the quality of products or services which it generates

The principles are, or perhaps more accurately ought to be, a set

of concepts, soundly devised and logically articulated, which form a theoretical framework around which schemes of practice can be designed. It is a feature of accountancy that its conceptual foundations are less well-founded or articulated than those which involve the natural sciences and most other branches of social science. To a significant extent, accounting principles are recognized as pragmatic developments founded on the concept of the accounting entity, the axioms of prudence and realization, and the practical requirements of stewardship reporting. The result is a degree of imprecision and lack of internal consistency which render it imperative that well developed accounting models are much more than naive applications of raw accounting principles.

Expediency in accounting systems has as its sole logical base a wish to economize in the costs of information provision. Where this is associated with equal measurement of the value of potential information, such that an informed cost-value tradeoff is undertaken, expedience may have a role to play. This may especially be true where considerations of information overload indicate that the principle of parsimony should be invoked. But, it is not a widely observed feature of the U.S. industry that careful measures of such tradeoffs or deliberate avocations of parsimony obtain. Too often expediency is a symptom for false economy, at best lack of perceptiveness and at worst sheer idleness. However, expediency can also have a quite different interpretation. It may reflect no more and no less than an obsession with the "fast buck", the short term view or

index of economic performance (the "bottom-line" syndrome which figures so largely in so much of U.S. management perceptions), and the urge to reduce tax liability.

Management perceptions in this context relate to the view which management takes of the nature of the operations for which they are responsible (capital v. other resource intensive; high or low risk oriented; long or short term result cycles, are typical perception vectors) and the quality of the services or goods produced therefrom (high or low market obsolescence rates; occasional or continuous ordering environments; customer relationships terminating with sale vs. after sales relationships of significant importance in the marketing matrix, are typical perception vectors). Whether the services or products produced are themselves transferred to the customer, or are media whereby customer service is achieved is immaterial to such perceptions, which comprehend both situations. Aggressively or defensively, immediately or over time, management will express dissatisfaction with and even rejection of any accounting control and reporting system which does not to them seem to model the situation and its outputs in a manner which conforms to their perceptions, and will press for system modification until it does. This, afterall, is the basic premise of the contingency theory of accounting which is so widely canvassed in contemporary industrial societies.

## Conclusions

Expenditures incurred in the film-making and record industries have much in common with those incurred in the software industry. In all cases, the value of the finished product is primarily attributable to the labor that was expended to bring the product into existence rather than the amount of material that went into the manufacture of the product. It is the recorded logical patterns that have value, not the material that contains those patterns. All three products (films, records and software) have projected economic lives and income streams that could conceivably exceed one accounting period, which would seem to make capitalization prudent. The fact that the medium on which the program is stored (disk, tape, etc.) may be discarded may be offered as further evidence that the value is in the information rather than the physical medium being used to store the information.

Because the manufacture of computer software has so much in common with the manufacture of records and films, it would seem logical that the accounting treatment for all three items should be similar in the interest of consistency. In fact, justifying a different treatment for software than for movies and records would seem to be difficult indeed. However, the questionnaire responses revealed that there is a wide divergence of accounting treatment for software. Some companies expense all software expenditures and others capitalize. Many companies expense the software they develop internally and capitalize nearly identical software that is purchased.

Because the issue of how to account for software is relatively new, and because there are no pronouncements that practitioners can turn to for guidance, we can expect to have a variety of different accounting methods until authoritative guidance is provided.

Software vendors and users generally expense internally developed software costs and capitalize purchased software. For software vendors, there appears to be no consistent substantial association between these chosen procedures and either the field of operation or company size.

Companies choose their software accounting policy based on expediency rather than reasoned principle. This approach is taken for a number of reasons, the primary one being that it is easier and less costly from a recordkeeping viewpoint to expense rather than capitalize. The accounting profession sees the expensing approach to be more conservative, too, and some companies have experienced pressure from their independent auditors to expense rather than capitalize software costs.

Companies that capitalize software costs find it easier to raise debt capital than do companies that expense software. There is a feeling among bankers that capitalizing companies are safer than expensing companies.

There is weak evidence to suggest that a company's stock price

may be affected by its software accounting policy, although it is not clear whether a capitalizing company will have a higher or lower stock price than an expensing company. Financial analysts do perceive companies differently based on their software accounting policies. Some analysts prefer companies that expense software; others prefer companies that capitalize it.

There is a tendency for companies to classify software as tangible for federal tax purposes and intangible for state sales, use and property tax purposes. The reason for differing treatment is that such an approach reduces taxes.

**Future Developments**

The software industry is evolving on a daily basis. What was a brilliant innovation three years ago has now been discarded for a more advanced and efficient product. Software accounting is lagging behind the software industry. Software accounting policy evolves slowly. Although the software industry came into its own in 1969, there still is no comprehensive, all inclusive rule for software accounting.

There is also a two pronged political dimension which has raised its head but has not yet been dealt with. The American software industry is facing strong foreign competition, and a software accounting policy that would help companies raise finance would be helpful. But when the Financial Accounting Standards Board issued

Statement No. 86, they paid little attention to this issue. The second prong involves federal taxation policy. Congress is presently debating the tax code, and may soon pass a tax reform act that will affect the tax treatment of software. The research credit will likely be extended, but its treatment of software is in doubt because congress regards software as a relatively minor issue. It also seems likely that the investment tax credit will be repealed (temporarily), which could adversely affect the software industry. There seems to be nothing in the present turmoil over corporate tax legislation that yields any clues as to the attitude of future administrations, however general. But it can be stated with some assurance that there will be a political dimension to the development of generally accepted software accounting practices; but it is beyond the scope of this thesis to speculate upon the extent and direction of that influence.

In the meantime, the first signs of the development of an accepted practice are visible--the ADAPSO Exposure Draft and the reaction of the FASB, SEC and AICPA; the resulting AICPA project, SEC moratorium and NAA Issues Paper; the FASB Exposure Draft, public hearings and final Statement No. 86, which addresses only a fraction of the software currently being produced. If one were to speculate, it would be safe to say that the software accounting issue has not been settled. There seems to be some movement toward capitalization (Comserv and some commentators are leading the charge), which represents a movement away from expediency and toward reasoned principle. But the movement has been slow and will

likely continue to be so. At present, there is no rule on how to account for software used internally. The FASB deliberately ducked this issue because they wanted to issue something as soon as possible so as to lift the SEC moratorium. Including a discussion of internally used software would have slowed the process. Now that the pressure is off, the FASB can examine this remaining issue at a more leisurely pace. Accounting for software is an issue of recent origin (1969), so we are just at the beginning. And the industry continues to change rapidly. Accounting policy will evolve as our knowledge increases and as the industry continues to evolve.

**Further Research**

This report has necessarily presented a static interpretation of a dynamic situation, but hopefully it will nevertheless define the essential features of the industry, and establish the parameters for further research. Three sorts of further work would seem to be especially fruitful. (1) Replications of the present work to widen and re-test the empirical data; (2) Ad hoc studies, including case studies, of individual issues raised in this research, monitoring developments and refining conclusions; and (3) Use of different research methodologies and models to be applied to the problem of software accounting, using both "as is" and "after the event" approaches.

There is considerable need for replications of the questionnaires used in the present study. This might be usefully extended to non-U.S.

based companies in order to establish an international dimension to the enquiry. If the same software vendors and users were polled again, different responses might very well be received. A different group outside the U.S. might also provide differing responses. A poll of bank lending officers might reveal a change of opinion, perhaps because they have become more aware of software accounting since my survey was conducted (I doubt it, but there is no way of telling, short of another study). Non-U.S. bankers might view software accounting in a different light, and a study of their perceptions might reveal these differences. Another poll of financial analysts is also called for. The light response received in my study seems to reveal that these people are unwilling or uninterested in the subject, and another study having a larger sample size might prove enlightening. Again, inclusion of a non-U.S. group could prove highly interesting, since non-U.S. companies seem to be less bottom line oriented, at least in the short term.

A study could profitably be conducted using the case study approach, perhaps including companies in one of the many facets of the ever-changing software industry. Large company practices could be compared to small company practices. A study of financial statement footnotes similar to the ones in Chapters 2 and 5 could also be conducted to see whether software vendors and users have changed their disclosure policies, or, indeed, to see whether they have any disclosure policy at all for software accounting policy.

A myriad of studies could be made addressing the tax aspects of software, both in the U.S. and elsewhere. A comparative study of software tax policies in various countries could be made, although such a study might involve some foreign language ability and travel. While at the FASB Hearings on software in New York City in May, 1985, a Frenchman told me that France recently enacted a tax policy for software, which was strictly for revenue raising purposes and had nothing to do with good theory. Perhaps other countries have tax policies for software as well.

Several studies could be conducted just analyzing software taxation in the United States. At the federal level, the investment tax credit may soon be repealed, and it is interesting to speculate how its repeal will affect the growth of the software industry in the United States. The Internal Revenue Service continues to insist that software is intangible (unless bundled with hardware), but one court case has held otherwise. This issue is by no means resolved. The credit for research and experimentation is also in a state of flux. The proposed regulations were withdrawn for redrafting and will not be issued prior to the 1986 election. Congress is presently working on a tax proposal that could change the rules in this area, and may in fact change the rules before the revised regulations can be issued. The effect of these new rules, whatever they are, will undoubtedly have an effect on the software industry, and a study could be made to determine the effects of these new rules.

At the state level, each state has its own rules for taxation of software. Some states do not tax it at all. Other states tax only off the shelf programs. Yet others do not as yet have a rule at all. State tax rules can be made either by legislation or by court decision, and it is reasonable to expect that the rules discovered in the course of this study will not be the same as the rules that will be in effect in three to five years. A study could be conducted to determine whether any trends are developing, and the effect that software taxation has both on the software industry and on the location of some of the firms in that industry.

There is some evidence to suggest that some companies are either moving out of California or not moving into California in the first place because of California's software tax policies. Some former California companies have moved north to the states of Washington or Oregon, or even to British Columbia in Canada, for tax reasons. Some Japanese companies are locating in the Pacific Northwest or British Columbia rather than California for the same reason. Some data processing companies that specialize in data entry have large branches in the West Indies because of taxes and labor costs. A study could be conducted to determine the pervasiveness of software taxation policies on a company's location or change in location.

A further and more specifically structured enquiry into the cause-effect relationships of software accounting systems is an obvious path for future research. Almost certainly it should be a

longitudinal study, for the software industry is still in a development situation --i.e., a situation of change, and those relationships will themselves change in reaction to the changes in the industry so that point-in-time will be of restricted value.

Furthermore, the Securities and Exchange Commission's moratorium(since lifted, upon issuance of FASB Statement No. 86), coupled with the opinions of the several regulatory professional bodies such as the Financial Accounting Standards Board's Exposure Draft and later Statement No. 86 on software intended for sale or lease, and the recent Issues Paper of the National Association of Accountants on accounting for internally used software will have an effect on firm software accounting policy. It is interesting to speculate whether software user firms will have a tendency to follow the rules of Statement No. 86(which do not apply to software used internally) or will follow the rules outlined in NAA's Issues Paper(which are not binding, but provide guidance). A study could focus on the effects these pronouncements have had on software accounting policy.

It is likely that given the growing concern about the accounting treatment of software costs which first sparked off the present enquiry, there will be a sequence of such opinions or position papers and it will be proper that the changing consequences of these should be captured by a specific study. What is called for, it is suggested, would be an ex-post study of the impact of an accounting standard or

the like on security valuation and beta distributions (risk measures) of the type developed by Abdel-khalik and his colleagues in respect to "The Economic Effects on Lessees of FASB Statement No. 13, Accounting for Leases."

Studies aimed at explaining the present state of actual practice, and to yield insights into preferable social, technical and fiscal developments would be helpful in understanding WHY things are as they are, and is a necessary input to any efficient reformation process. A longitudinal study of the actual situation from the standpoint of accounting information theory which seeks to determine more profound reasons for developing "states of the art" over time is an important element in the understanding of the process of change in practice. An "ex post" capital study covering both debt and equity markets will show the effects of a change in practice.

There is indeed much to be learned about accounting for software, not only for its own sake (i.e., for its impact upon financial statement analysis and consequent investor/lender reactions, its implications for systems of corporate taxation at both federal and state level, and its consequences for internal management control systems or decision making) but also because it is itself a potentially rich case study for the examination of the development of a closer relationship between theories and concepts of accounting on the one hand and practices on the other, which is to say, for a significant increment to our understanding of the discipline of accounting itself.

# ACCOUNTING FOR SOFTWARE IN THE UNITED STATES

Volume Three of Three Volumes

Submitted By

ROBERT WILLIAM MCGEE

In partial fulfillment of the Doctor of Philosophy Degree
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School of Industrial and Business Studies

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# APPENDIX A

## COMSERV CORPORATION'S

## SOFTWARE ACCOUNTING POLICY

## INTRODUCTION

If any one company in the software industry can be singled out as being an aggressive advocate of software capitalization, that company is Comserv Corporation. Although other companies also capitalize certain software construction costs, Comserv Corporation has been receiving the lion's share of press coverage.[1] One reason for all this attention is due to the effect that capitalization has had on their financial statements. For example, their reported profit of $2.2 million in 1981 would have been a $1 million loss had all software construction costs been expensed. In 1982, the reported $2.5 million profit would have been a $4 million loss instead.[2] A similar reaction can be expected for any rapidly expanding software company that capitalizes software construction costs.

### Accounting for Software Construction Costs[3]

In 1974 the Financial Accounting Standards Board, established certain guidelines for the accounting treatment of research and development costs. At that time Comserv reviewed all expenditures to date of this nature with their auditors, Peat, Marwick & Mitchell. As a result of this review the various expenditures were classified as research and development or software construction costs and handled

accordingly. Research and development costs were expensed and software construction costs capitalized. Comserv has followed a consistent practice since then in the accounting treatment of these types of expenses. The capitalization of software construction costs has been, and continues to be, of major importance in the company's strategic, business, and operations planning.

Comserv Corporation separates its product construction costs into two major areas--computer software and education courseware. Costs incurred to enhance, improve and adapt its Advanced Manufacturing, Accounting and Production System (AMAPS) software product are capitalized to computer software. Similarly, costs incurred to enhance, improve and adapt its existing education courseware products are capitalized to education courseware.

Enhancements include costs to improve the operational quality, effectiveness, or efficiency of the company's existing software product, AMAPS, or individual modules of this product. Enhancements include adding features or functions to the existing product. Each enhancement is covered by a separate release which is issued to clients with maintenance agreements and which updates the company's AMAPS product available for future licensing. Other examples of this type of enhancement are a new feature put into the

existing material control and purchasing module of the AMAPS product to produce an additional report, and changes in the material requirements planning module of the AMAPS product which increased the functional speed of its programs. Enhancement projects also include upgrading of user documentation for the AMAPS product. This involves clarification, corrections and additions to the documentation.

Improvements include costs to improve and extend the functionality of the existing AMAPS software product or courseware products such as additional modules to AMAPS or additional education courses that support the AMAPS product. Examples of projects that come under this category of improvements include the purchasing module, the cost management module and the lot traceability module which were planned additions to improve the overall AMAPS product. Improvements also include education courseware materials such as student kits, instructor kits, and visual aids packaged for specific classroom courses and workshops on AMAPS such as the production system, purchasing control, master production scheduling and standard cost, as well as video tape courses.

Adaptations include adapting the existing AMAPS product to different computer system operating environments. Adaptations enable the AMAPS product to operate in different IBM

operating environments which utilize, for example, database management systems marketed by software vendors other than IBM (e.g., Cullinane, Software AG, Applied Data Research, etc.). They also involve adapting the AMAPS product to operate on the Wang or Prime minicomputer systems. Other examples of projects involved in the adaptation of the AMAPS product include the AMAPS 3000 project, which is adapting AMAPS to operate on the HP3000 minicomputer hardware, and the "Advanced On-Line," AMAPS/Q project which affects all existing AMAPS modules and makes the system easier to use. This enhanced on-line capability provides for immediate response to inquiries for information and immediate update of all files affected by a specific transaction such as shipping from finished goods inventory.

Computer software and education courseware construction costs that have been capitalized by the company are assets which benefit a number of future periods. They are assets in that they are economic resources that have future economic benefit in a manner similar to that of fixed assets. Since these assets benefit several periods, their cost is capitalized and allocated to the periods in a systematic and rational manner based on an estimate of the periods of their economic benefit. The future periods of economic benefit are the periods in which revenues will be earned from the

software product license and maintenance agreements and education product license agreements. In this way there is a matching of computer software and education courseware construction costs with the related revenue.

The general authority in the accounting literature for the company's accounting practices for computer software and education courseware construction costs includes paragraphs 19 through 24 of FASB Statement of Financial Concepts No. 3 and paragraph 23 of APB Statement No. 4, Chapter 6. FASB Statement of Financial Concepts No. 3 states than an asset has three essential characteristics:

a) it embodies a probable future benefit that involves a capacity, singly or in combination with other assets, to contribute directly or indirectly to future net cash inflows,

b) a particular enterprise can obtain the benefit and control others' access to it, and

c) the transaction or other event giving rise to the enterprise's right to or control of the benefit has already occurred.

Clearly, the company's software and education courseware meet these tests. They have a probable future benefit based on the company's solid past history of generating revenues from their use and also based upon future projections. The company has proprietary control over them and can limit others' access to them, as evidenced by its licensing agreements. The events giving rise to the company's right to these assets and control of their benefit has occurred through the process of the company's expenditures and actions to protect its physical and legal control over them. The assets have future service potential and are fully recoverable from future revenues.

APB Statement No. 4 states in part that "in the absence of direct means of associating costs and cause and effect, some costs are associated with specific accounting periods as expenses on the basis of an attempt to allocate costs in a systematic and rational manner among the periods in which benefits are provided." The cost of construction of Comserv's software and courseware has benefits for a number of future periods and accordingly Comserve capitalizes such costs and amortizes them over those periods.

There is additional accounting literature that deals with certain aspects of the accounting for software costs. These pronouncements are Financial Accounting Standards

Board Statement No. 2 (FAS No. 2), Financial Accounting Standards Board Interpretation No. 6 and Financial Accounting Standards Board Technical Bulletin No. 79-2. Reference should be made particularly to paragraph 7 of Interpretation No. 6 and to Technical Bulletin No. 79-2. Exhibit 1 illustrates these three pronouncements.

Exhibit 1 below indicates that, for routine or other ongoing efforts to enhance or improve an existing product or adapt a product to a particular requirement, the accounting literature only requires the expensing of (A) Market Research; the accounting policies for the remainder of the product processes are not mandated by specific accounting literature but rather are covered by the general accounting literature. For new products or significantly improved products, the accounting literature calls for expensing the costs of product processes A through E.

It is Comserv's policy, as noted in the column "Comserv Treatment" to expense Items A through F for all computer software construction. This includes the expensing of all such costs, even for the enhancement, improvement or adaptation of existing products. Activities A through F cover the design of the pre-production model, if this is necessary, and culminate in a detailed final product design/definition document.

Comserv capitalizes software construction costs that relate to (G) Detailed System Specification, (H) Detailed Program Specification, (I) Programming/Testing, (J) System Integration/Testing, (K) Quality Assurance, and (L) Product Release. These procedures are part of Comserv's construction process, as they are integral steps in the structured programming process once the final product design and definition have been established.

The staff of the FASB issued Technical Bulletin 79-2 to clarify that FAS No. 2 and Interpretation No. 6 do not require that all software costs be treated as research and development costs. The FASB staff concluded that those companies that were expensing software construction costs were doing so not based on the determination that such costs are research and development but rather, in many cases, based on other factors such as an assessment of the recoverability of those costs. The technical bulletin states that the decision to capitalize or expense software construction costs not meeting the definition of research and development can only be made in light of all the facts and circumstances surrounding the particular situation. This is what Comserv does in setting its accounting policies, which are based on the well-supported conclusion that the software construction costs that it capitalizes are recoverable.

For example, substantially all of the company's software construction endeavors involve ongoing efforts to enhance and improve AMAPS or adapt it to particular requirements. The success of the company's return on its investments in enhancements, improvements, and adaptations of the AMAPS product has been consistently outstanding.

The company's efforts at enhancing and improving its products are part of the orderly progression necessary in the software industry to protect and improve market position. With the availability of additional capital, the company has accelerated certain planned enhancements, improvements and adaptations of its AMAPS software and education courseware products to capitalize on its established market position and increase market share as well as expand revenues from its existing client base. As the company continues to adapt the product to additional operating environments and make numerous enhancements and improvements in the product, the incremental cost of each increases significantly. AMAPS is an integrated manufacturing, accounting and production system, consisting of nine separate modules (two more to be completed in 1983), over a million lines of code and some 120 separate manuals of documentation. Any enhancement, improvement or adaptation can require change in numerous modules and versions of the system.

The computer services industry historically has expensed all so-called R&D expenditures, not distinguishing particularly between R&D and product construction costs as is done at Comserv. Part of this is true because of the history of significant expenditures of this nature in the 1960's when building standard software products for sale was new and experimental. In some cases this resulted in write-offs. In addition, very few of the companies in the industry were publicly held and were more concerned about taxes than the accounting treatment of these costs. Therefore, they were identified as R&D costs and were written off for tax purposes. Comserve was one of the very early publicly held companies, going public in 1971. Through most of the 70's there were very few publicly held software product companies in the industry. The accounting treatment given to these types of expenses has come under closer scrutiny in the past several years as many more of the companies in the computer services industry have become publicly held.

There are four major reasons for giving careful consideration to the accounting treatment of these types of costs: (1) the accounting principle of matching revenues with expenses (the future value of the asset), (2) recoverability of the investment, (3) consideration of whether or not the treatment distorts reported earnings, and (4) the

establishment of the true value of the company on its balance sheet. There is no disagreement that if certain of these costs are truly research and development, they should be expensed. On the other hand, it is questionable whether much of the costs identified as research and development by many companies in the industry really should be so classified. A careful interpretation of the FASB guidelines on research and development, as stated earlier, would indicate that computer programming software construction costs are not R&D. Whether or not these costs are expensed or capitalized, the real consideration in determining the accounting treatment involves the future value of the asset and recoverability of the investment. If the investment is clearly recoverable in a reasonable period of time (supporting the future value of the asset), then these expenses should be matched with the revenues from the products produced. If this is not done it results in distorted reported earnings. In addition, if the true value of such a capital investment is not reflected on the balance sheet, a company is not in a position to take advantage of the full value of the company. As a result, the company has less capability to borrow funds against its balance sheet and leverage the shareholders' investment.

Referring to earlier comments on the FASB guidelines defining research and development and the handling of software construction expenditures, very little if any of the expenditures called R&D by many of the companies in the computer services industry could actually qualify as R&D under the FASB guidelines. This, of course, can be very misleading to investors. A company spending significant dollars on R&D is normally looked upon favorably by investors, particularly in a high technology industry such as the computer services industry. Large R&D expenditures communicate to the investor that the company is keeping on top of technology and out in front in terms of the competitive nature of their products and their long term ability to grow and survive in a very competitive market. If, in fact, these expenditures are really not R&D, and are not being spent on new discoveries and new ideas and new concepts, but are actually expenditures to construct software products using conventional and known technology, then it raises a serious question as to whether or not the company is misleading potential investors who are attempting to determine the future prospects of the company. If we dispose of the term R&D and look upon these expenditures for what they really are, then the question of recoverability becomes a key issue and the expenditures can be handled in a conventional business manner.

Another very important consideration on this matter is management control of what has developed in the computer services industry into very major expenditure commitments in the construction of software products. As mentioned earlier, one of the concerns that has been expressed about capitalizing software construction costs is the reference back to the 60's when some expenditures had to be written off because of a lack of market and, therefore, no recoverability of the capital that was invested. Today the industry is much more mature. With experienced management the exposure to this type of practice is reduced significantly. On the other hand, because of the size of the expenditures necessary to build software products that are acceptable in the marketplace today, the need for good management controls is essential. Comserve has implemented various control processes over the past several years and continually reviews the effectiveness of these controls. Today a preliminary product description and business plan is prepared for approval by a Product Steering Committee in connection with each recommended project. If the project is approved, specified review dates are establshed in order to put in place "go/no-go" decision points before initial funding is approved. Upon completion of a Phase I effort, a thorough review is made of the project, the business plan, expenditures to date, the level of assurance on achieving the

return on invested capital set forth in the business plan, and both the "technical" and "market" risks. The business opportunity in the marketplace is thoroughly reviewed. This is all done prior to giving the go ahead for additional funding on the next phase of the project. In addition, a new "go/no-go" review decision could result in the product being cancelled and all of the costs incurred to date expensed. This formal product construction process is extremely important to have in place in order to properly assess the recoverability of invested capital in product construction.

Exhibits 2 and 3 illustrate the Comserve control process described above. Exhibit 2 is an overview of the Comserve product planning and construction process. This exhibit identifies the approval levels required through the process. It also identifies the costs that are expensed and the costs that are capitalized. The Exhibit 3 details the product construction activity flow. Here again the costs that are expensed and the costs that are capitalized are identified. In addition, arrows indicate where the go/no go decision review points might be in a typical project. These review points will vary depending on the size and nature of the project.

Another consideration on this issue of capitalization versus expensing of software construction costs relates to the restrictions that expensing of these capital expenditures has on the growth potential of a company. Comserve Corporation, for example, has positioned itself in the industry where it is facing an attractive business opportunity for expansion and growth. The company has been able to obtain equity capital and is in a position to invest this capital and achieve attractive returns quickly for the company shareholders. If these capital investments in product construction cost had to be expensed, Comserv Corporation would have to severely limit the magnitude of its product construction costs in order to sustain an adequate earnings growth to support the current market price of the stock. This would put an arbitrary "cap" on Comserv's growth opportunity. Expensing these kinds of capital expenditures forces a company in many cases to restrict its growth opportunity. This is particularly true of small companies which have successfully completed their "start-up" phase and have an attractive growth opportunity in their selected market niche but must make significant investments in product construction in order to capitalize on this business opportunity. Earnings performance is necessary to attract the necessary capital. Expensing all software construction costs can severely restrict the small company's ability to grow. On

the other hand, this policy can be very favorable to a large software company, over $50 million in annual sales, which has the "critical mass" in annual revenue to carry an adequate level of expensed software construction costs. Faced with this situation, management will often turn to alternatives which could include the purchase of software products. Accounting guidelines allow for capitalization of purchased software. However, when a software product company purchases software developed by some other company, the risk of a write-off of that purchase price increases significantly. When a company is buying software the "technical risk" may be minimized because the product exists but the "marketing" and "management risk" could be significantly higher in attempting to integrate it into their existing product line. The company normally will not have the people who built the software and can run into severe difficulties in attempting to install and support the system. One million dollars on the balance sheet of a company reflecting a purchase of software as opposed to one million dollars on the balance sheet of a company reflecting the internal construction of that same software is, in many cases, much more subject to risk or write off. Other alternatives might include an R&D partnership or the acquisition of a company. In the case of an R&D partnership this could very well result in an unnecessary dilution of the earnings of the

company and thus a reduction in the appreciation of the stock of the company for the shareholders. R&D partnerships can be an appropriate form of financing in certain cases. On the other hand, it can often be a very expensive financing vehicle for this type of product construction where development technical risks and marketing risks are not significant. Acquiring another company of course offers the acquirer an opportunity to reflect the software product as an asset which can then be expensed over many years. Here again, the exposure and risk is amplified considerably compared to in-house construction of software. Consider the dismal record of acquisitions and the performance of acquired companies for the parent company in the computer services industry.

In the case of Comserv, AMAPS is a very large, comprehensive product. As indicated earlier it consists of over one million lines of code and 120 manuals of documentation for a single version. The construction of AMAPS began in 1975 as an upgrade of a previous product, MAPS. It is a completely integrated manufacturing system. Today there are nine modules available and the product is still being added to (two more to be completed in 1983). There are several additional modules being planned. AMAPS, because it is a completely integrated manufacturing system, does not give

Comserv an opportunity to go out and acquire a separate module such as the purchasing module or the cost management module. These modules must be constructed internally and integrated into the entire system. Comserv has an extended user base of some 300 major manufacturing company sites which made a decision to do business with Comserv based on a demonstrated commitment to extensive additional product construction to complete the total system. This base of users represents a ready-made market for the additional modules to AMAPS and an assured recovery of the capital necessary to produce these modules. This is not necessarily true of all companies in the industry. The point here is that the work they are doing, in excess of 90-95% of the work being done on software products, is certainly not in any way related to research and development. As mentioned earlier, the question of recoverability is very key.

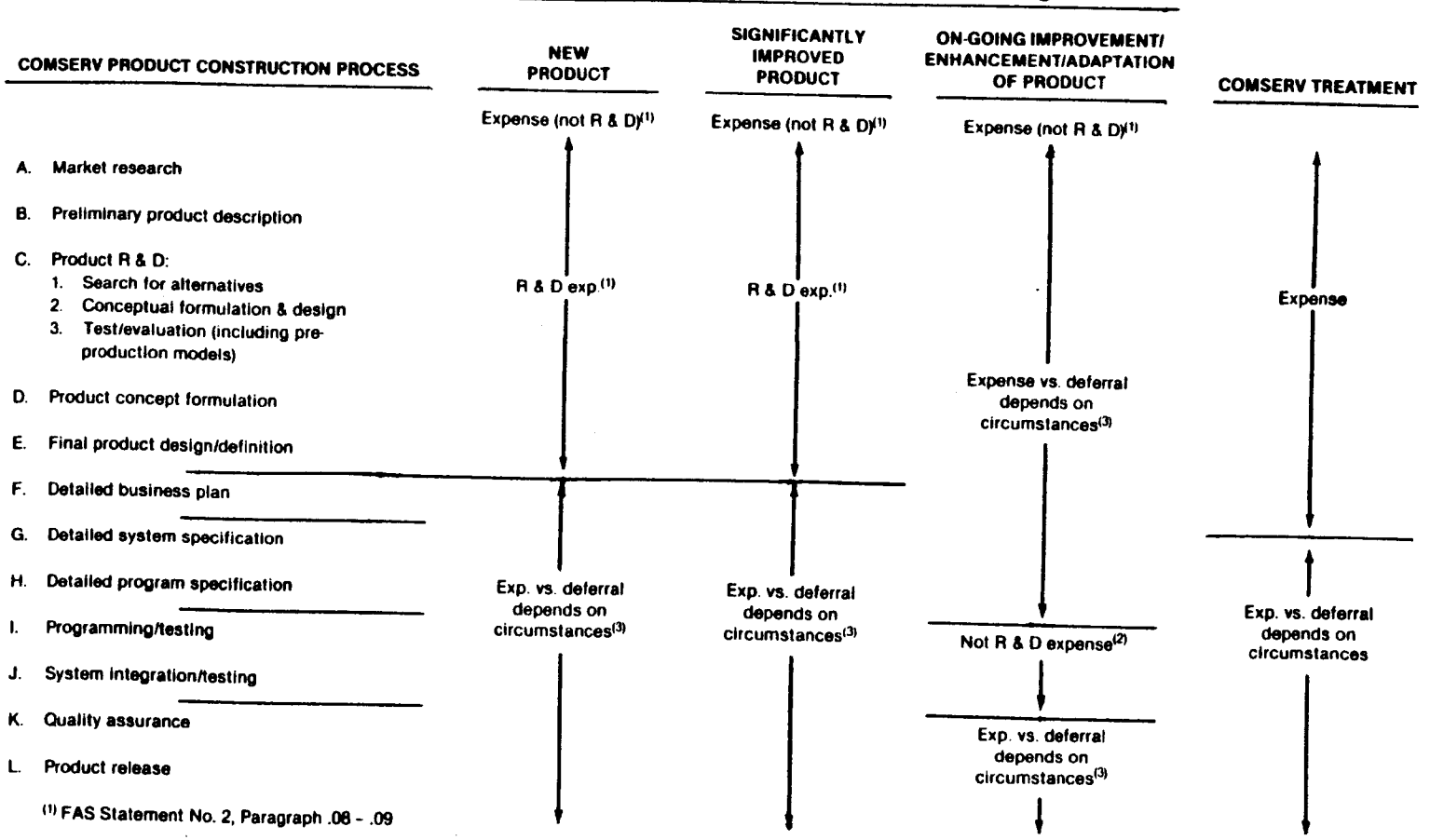
COMSERV CORPORATION

SOFTWARE CONSTRUCTION COST AS % OF REVENUE

| | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|---|---|---|---|---|---|---|---|---|---|
| Software Construction Costs | 13% | 14% | 13% | 22% | 32% | 25% | 20% | 15% | 12% |
| Amortization | 7% | 5% | 4% | 4% | 7% | 8% | 9% | 9% | 9% |
| Research and Development | - | - | - | 1% | 1% | 2% | 2% | 2% | 2% |

# DIAGRAM OF FASB LITERATURE PERTAINING TO RESEARCH & DEVELOPMENT

EXHIBIT 1




(1) FAS Statement No. 2, Paragraph .08 - .09

(2) FAS Interpretation No. 6, Paragraph .07

(3) FAS Technical Bulletin No. 79-2, Paragraph .003

EXHIBIT 2

# COMSERV OVERVIEW PRODUCT PLANNING AND CONSTRUCTION PROCESS

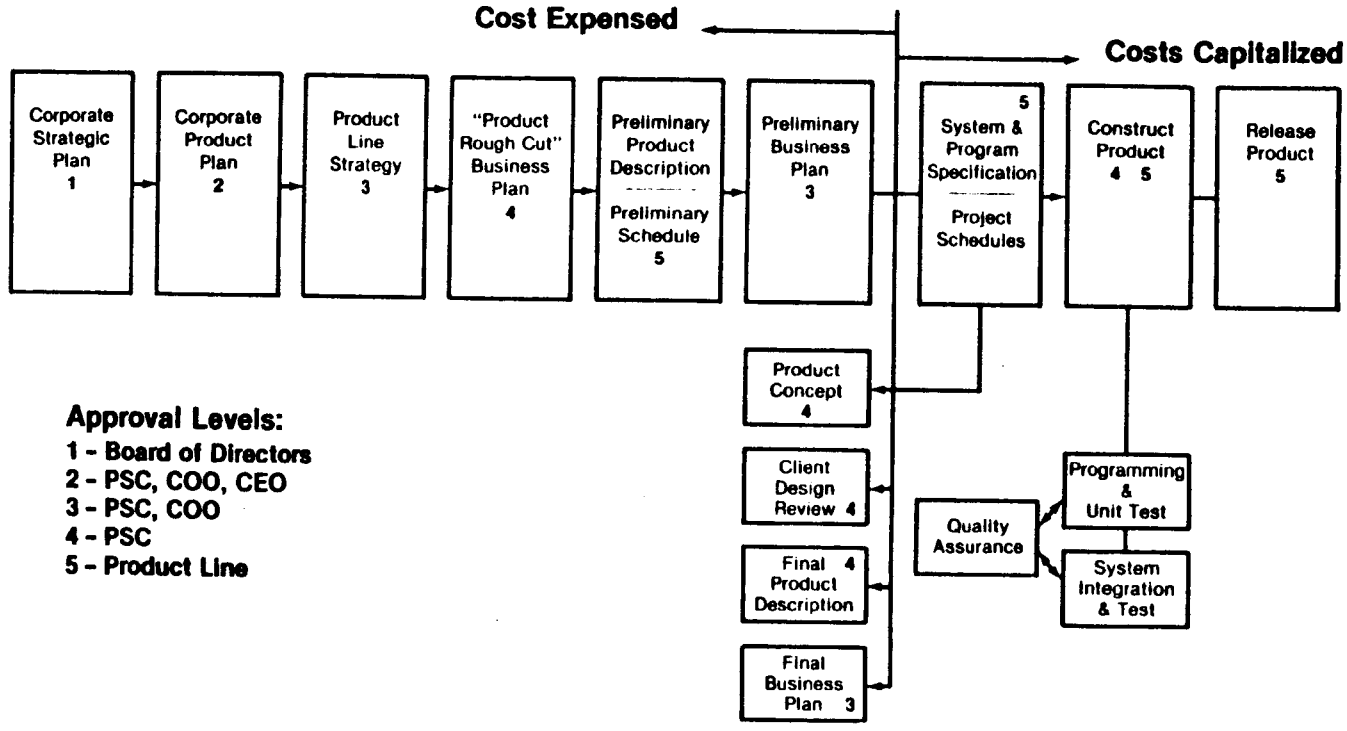
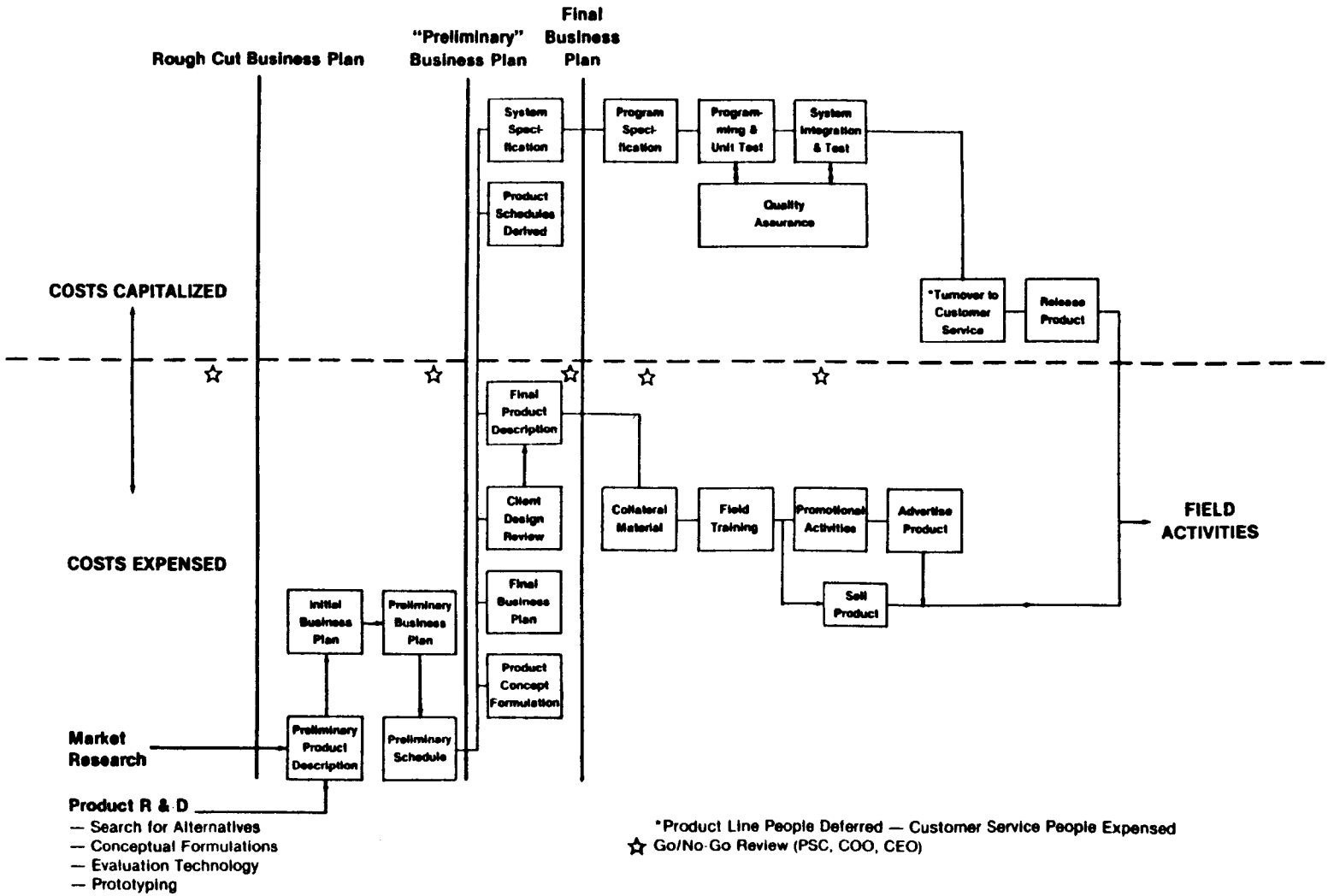


EXHIBIT 3

# PRODUCT CONSTRUCTION ACTIVITY FLOW



## FOOTNOTES

[1]See Alex. Brown & Sons, "Industry Accounting Concerns," Computer Services Monthly, August, 1982; Gary W. Burns, and D. Scott Peterson, "Accounting for Computer Software," Journal of Accountancy, April, 1982, 50-51, 53-54, 56, 58; "Comserv Restates Its Results to Show Wider Loss in 1st Half," Wall Street Journal, September 26, 1983, 13; "Expenses, Shmexpenses," Forbes, May 23, 1983, 13; Eamonn Fingleton, "Capital Offense," Forbes, January 17, 1983, 100-101; Eamonn Fingleton, "U.S. Laws Hit Hi-Tech," Accountancy Age, April 21, 1983, 21; Robert W. McGee, The Effects of Software Accounting Policies on Bank Lending Decisions and Stock Price, (New York: National Association of Accountants, 1984); Robert W. McGee, "The Effects of Software Accounting Policies on Bank Lending Decisions and Stock Price," Seton Hall University Faculty Working Paper Series, 1984; Roger Neal, "Caution for Lotus-Eaters," Forbes, September 26, 1983, 52, 54; S. F. Accardo, "Computer Software," Corporate Finance Research, Shearson/American Express, November 9, 1982; John Barres, "Tracking the Accounting and Taxation Methods of the Computer Software Industry," MBA thesis, New York University, 1984; Craig-Hallum, Inc., "Comserv Corp.: Forbes Article Reaction Rating Increased From 3-1 to 2-1," Wire No. 18, January 10, 1982; Elizabeth M. Ewart, "Corporate News Update," O.T.C. Growth Stock Watch, April 15, 1983.

[2]See "Expenses, Shmexpenses," Forbes, May 23, 1983, 13; Eamonn Fingleton, "Capital Offense," Forbes, January 17, 1983, 100-101; Eamonn Fingleton, "U.S. Laws Hit Hi-Tech," Accountancy Age, April 21, 1983, 21; Roger Neal, "Caution for Lotus-Eaters," Forbes, September 26, 1983, 52, 54.

[3]The material for this chapter is based on the material Comserv Corporation submitted to the Securities and Exchange Commission in response to the software moratorium. For a study of Comserv Corporation's software accounting policies, see John Barres, "Tracking the Accounting and Taxation Methods of the Computer Software Industry," MBA thesis, New York University, 1984.

# APPENDIX B

# THE GENERAL ACCOUNTING OFFICE'S SOFTWARE ACCOUNTING POLICY

The material for this chapter has been taken from Illustrative Accounting Procedures For Federal Agencies: Guidelines for Accounting for Automatic Data Processing Costs, Federal Government Accounting Pamphlet No. 4, United States General Accounting Office, 1978.

## CHAPTER 2

## CAPITALIZING EQUIPMENT AND SOFTWARE INVESTMENT COSTS

### SECTION 1: BASIC PRINCIPLES

Computers, related equipment, and software should be considered long-lived assets subject to capitalization and depreciation in accordance with GAO's accounting principles and standards for Federal agencies. The investment costs should be recorded in the general ledger and in property records.

### SECTION 3: GUIDELINES FOR CAPITALIZING SOFTWARE

Computer software--including operating, multipurpose, and application software--generally possesses three essential characteristics attributable to assets: long life, significant cost, and legal identity. Whether developed in-house or under contract, or purchased outright, software having these characteristics should be considered an asset

subject to capitalization in agency accounts. Accounting for depreciation is discussed in chapter 3.

## A. ACCUMULATING INVESTMENT COSTS

GAO's Accounting Principles and Standards for Guidance of Federal Agencies (GAO Manual title 2, subsec. 12.5) prescribes that:

> "Management control over the cost of assets acquired by construction should be such as to assure that the cost of the work is kept within the authorized amounts and that accurate costs are recorded and transferred to the proper fixed property accounts when the work is finished."

Accounting for costs of software development must meet this requirement.

### 1. Recording Work-in-Process Costs for Capitalization

Job order and project cost methods are recommended for accumulating costs of new software, both by purchase and development. Both methods provide useful information for management control. Job order costing is recommended where work is done within a normal hierarchial organization.

Project costing is recommended where a single project manager is responsible for the results, such as for a new development effort (either in-house or by contract).

To facilitate separation of capital from maintenance expense when work is completed, a separate work-in-process subsidiary record should be established for each application or other software system. After a new or modified software system is tested and accepted for operations, total costs should be transferred from the work-in-process subsidiary record to the appropriate property account, as discussed in subsection B below. Costs for acquiring and developing new software systems and for modifying, converting, and improving existing systems which are to be capitalized should be accumulated in subsidiary records. Maintenance costs which are not to be capitalized should be recorded and then treated as operating expense. (See chapter 4.)

## B. RECORDING CAPITALIZED COSTS

The following system of records and accounts is recommended to appropriately record investment costs and charge depreciation.

## 1. General Ledger and Property Records

Acquisition costs incurred by an agency in obtaining software--through purchase, development or donation--should be recorded in a general ledger asset account and in appropriate property records. Property records may be as detailed as management needs, but the capitalized amount must be recorded and reconciled with the general ledger account. Where the investment in software is substantial, a separate general ledger account should be established so that costs can be readily identified.

## 2. Subsidiary Records

Each software system should have a separate subsidiary property record showing the cumulative costs incurred in obtaining and maintaining it. The amounts should be classified according to (1) acquisition and development, (2) improvements, conversions, and modifications, and (3) routine upkeep (maintenance). Minimal information to be included in a software property record is shown below.

## FIGURE 4

## Illustrated Software Property Record

DESCRIPTION
Location
End user
Estimated life
Actual life
Date installed (month and year)
Salvage value
Depreciation amount (optional)
Costs:
    Acquisition/development (initial costs)
    Improvements (date, purpose, and cost incurred)
    Upkeep (annual expenditures) (optional)

Such a record would provide a source of information for management decisions, as well as for depreciation costing.

An agency with many software systems may desire a subsidiary record summarizing the investment and depreciation cost for all of its software systems. Such a record and its relationship to the general ledger and property records is illustrated in Figure 5.

## FIGURE 5

## Illustrated Relationship Between the General Ledger and Software Property Record

**General Ledger**

| Item | Cost |
|---|---|
| Assets: | |
| Vehicles | $ |
| Furniture | |
| Office equipment | |
| ADP equipment | |
| ADP software | xxx |
| Etc. | |
| | $ xxx |

ADP Software

**Summary Software Property Record**

| Code | System | Cost | Depreciation |
|---|---|---|---|
| | Personnel | | $ |
| | Payroll | $363,000 | $ 31,000 |
| | Supply | | $ |
| | Accounting | | $ |
| | Financial | | $ |
| | Cost | | $ |
| | Etc. | | |
| | | $ xxx | |

Payroll

**Software Item Property Record**

| | | |
|---|---|---|
| Description | Payroll | |
| Location | Computer center #1 | |
| End User | Agency-wide | |
| Estimated life | 12 years | |
| Actual Life | | |
| Date installed | June 1975 | |
| Salvage value | | |
| Cost: | | |
| Development | $285,000 | |
| Improvements | 78,000 | $363,000 |
| Upkeep: | | |
| 1975 | 5,000 | |
| 1976 | 3,000 | |

## C. CAPITALIZATION CRITERIA

The capitalization criteria established by an agency as part of its accounting policies should be applied to software. The following criteria are provided to promote consistent decisions among agencies.

### 1. Software To Be Capitalized

Two factors are to be considered in deciding whether nonrecurring investment-type costs for new software systems should be capitalized or be treated as a current operating expense: cost and useful life. Not every software system would warrant capitalization.

In general, the software (and hardware) of major ADP systems (as defined by OMB Circular A-109) and application or other software systems or subsystems whose acquisition cost is over $100,000 (i.e., the cumulative acquisition cost of computer programs or software modules which have the same application purpose) should have their acquisition cost capitalized. Agencies are, of course, free to set the threshold for capitalization below GAO's dollar threshold.

Some software does not have an extended life. As a general criterion, we recommend that costs be capitalized

when software systems are expected to be used repetitively for more than about 2 years. Criteria for deciding the useful life of software are discussed in chapter 3.

The amounts spent for developing and modifying computer programs that never become fully operational may be expensed.

### 2. Cost Elements To Be Included In The Acquisition Costs

Acquisition and development costs of computer software designated for capitalization should include:

-- The price of purchased software and the estimated useful value of software obtained by other means, including costs for preoperation modification, conversions, testing, and documentation. (See GAO Manual, title 2, subsec. 12.5.)

-- Salaries and benefits for agency staff and compensation of contractors and other Government personnel for developing new software and modifying software obtained through other means. This would include expenses for analysis, design, programming, documentation, testing and conversion. It would also

include expenses for preparing the computer operating instructions, user procedures manual and other documentation.

-- Computer operating costs for testing, debugging, and parallel processing.

-- Direct and indirect costs, such as office space, travel, supplies, communications, and special training, and normal overhead, incurred during acquisition and development.

3. Improvements

Costs for improvements that will increase the useful life of a capitalized software system should be capitalized. Management must decide whether work done on existing software will increase its useful life. As guidance for making such decisions, we recommend that costs be capitalized when changes are made to satisfy legislation or an Executive order, to convert software to different equipment, or to make processing more efficient. Unless they are substantial, costs may usually be expensed if changes are for corrections or one-time information retrieval (such as extracting data for a special report).

# CHAPTER 3

# ACCOUNTING FOR DEPRECIATION

## SECTION 1: BASIC PRINCIPLES

GAO's Accounting Principles and Standards (GAO Manual, title 2, subsec. 12.5(h)) requires each agency to adopt procedures to account for depreciation of capital assets whenever a periodic determination of all resources consumed in performing services is needed. Accounting for depreciation of ADP assets--software, hardware, and facilities--is required to obtain full reimbursement of costs and is important for management users, and others who need to know the full cost of ADP services.

## SECTION 3: ACCOUNTING FOR SOFTWARE DEPRECIATION

### A. GENERAL GUIDELINES

The method of accounting for depreciation of computer software should vary with the type of software and the nature of its use. When depreciation of computer software is reported it should be shown as an unfunded operating cost. In general, the investment cost should be amortized over a software system's useful life. Depreciation should be reported as follows.

1. Operating software

Depreciation should be reported as an operating cost along with equipment depreciation.

2. Multipurpose software

When multipurpose software benefits a limited number of applications, depreciation should be assigned and reported as a direct cost to the benefiting applications based on measured usage. Otherwise, multipurpose software depreciation should be treated the same as depreciation from operating software.

3. Application software

In general, depreciation for application systems and software whose costs have been capitalized should be taken and reported regularly over the life of the software. If the application supports several program functions, or organizational units, its depreciation should be prorated to each systematically on the basis of measured or estimated use. For convenience, such reporting may be done on an annual cycle and only to major organizational units.

## B. CRITERIA FOR DECIDING USEFUL LIFE

The useful life of operating software should be based on the useful life of the computer with which it is used. The useful life of multipurpose software and applications software should be estimated on a case-by-case basis. If such software is designed to be relatively independent of the computer system on which it is used, then the useful life should be based on the planning estimates made by management in deciding to develop or acquire the software. However, if the software is structured to suit a particular computer system, its economically useful life for depreciation purposes should not exceed the useful life of that computer system.

# CHAPTER 4

# ACCOUNTING FOR OPERATING COSTS

## SECTION 5: ACCUMULATING COSTS FOR EACH USER APPLICATION

## E. DISTRIBUTING MAINTENANCE COSTS FOR OPERATING SOFTWARE

### 1. Distributing Maintenance Costs for Operating Software

Recurring costs for upkeep of operating software (along with costs for rent and depreciation) should be

treated as operating costs of the computer with which the software is used. The cost must be distributed to the appropriate data processing work function (e.g., the function containing the central processing unit) and to benefiting applications based on measured use of the computer in processing. Normally the amount need not be itemized in cost reports or user bills.

### 2. Distributing Maintenance Costs for Multipurpose Software

Costs should be charged directly to applications, based on measured or anticipated use of multipurpose software in processing, when

-- it is used in processing data only for selected applications and the costs are significant or

-- managers or users need to monitor such costs.

Otherwise, the costs should be treated the same as costs for operating software.

# APPENDIX C

# COURT CASE BRIEFS OF

# SOFTWARE RELATED CASES

This appendix contains brief descriptions of the most important court cases that are discussed in chapters 13 and 14. Each case includes the full name of the case, legal citation, subject summary, issue, fact summary and holding. Some cases also include a discussion of the dissenting opinion or other pertinent facts.

Not all cases involve computer software directly. Some cases involve related non-software fact situations(such as film-making) that have been cited in software tax cases. Other cases(such as film cases) have cited software tax cases although the case itself does not concern itself with software taxation. More recent cases tend to incorporate the same lines of reasoning that have been used in earlier cases, and there is considerable overlap, so the cases have not been categorized based on lines of reasoning used. Indeed, some recent cases mention any and all lines of reasoning that might assist in winning the case.

Including these cases in an appendix rather than in the body of the thesis enhances the readability of the thesis proper, since much extraneous but interesting information can be made available without forcing the reader to wade through it while reading the chapter. The briefs are referenced by number in the chapters, and are included in this appendix in more or less alphabetical order for ease of reference. Briefs of the following court cases are included in this appendix.

1. Accountants Computer Services, Inc. v. Kosydar
1. Central Data Systems, Inc. v. Kosydar
1. The Andrew Jergens Co. v. Kosydar
2. Bank of America National Trust and Savings Association v. County of Los Angeles
3. Bing Crosby Productions, Inc. v. United States
3. Sussex Pictures, Inc. v. United States
3. MCA, Inc. and Universal City Studios, Inc. v. United States
4. Boswell v. Paramount Television Sales, Inc.
5. Bullock v. Statistical Tabulating Corporation

6. Bunker-Ramo Corp. v. Porterfield

7. Carl Beasley Ford, Inc. v. Burroughs Corporation

8. Chatlos Systems, Inc. v. National Cash Register Corporation, Inc.

9. Chittenden Trust Company v. King

10. Citizens Financial Corp. v. Kosydar

11. Commerce Union Bank v. Tidwell

12. Comptroller of the Treasury v. Equitable Trust Company

13. Computer Sciences Corporation v. Commissioner of Internal Revenue

14. County of Sacramento v. Assessment Appeals Board

15. Credit Bureau of Miami County, Inc. v. Collins

16. Crescent Amusement Company v. Carson

17. District of Columbia v. Norwood Studies, Inc.

18. District of Columbia v. Universal Computer Associates

19. F & M Schaefer Corporation v. Electronic Data Systems Corporation

20. Fingerhut Products Company v. Commissioner of Revenue

21. First National Bank of Fort Worth v. Bullock

22. First National Bank of Springfield v. Department of Revenue

23. General Data Corp. v. Porterfield

24. Greyhound Computer Corporation v. State Department of Assessments and Taxation

25. Helvey v. Wabash County REMC

26. Honeywell Information Systems v. Maricopa County

27. Intellidata Incorporated v. State Board of Equalization

28. James v. TRES Computer Service, Inc.

29. Janesville Data Center, Inc. v. Wisconsin Department of Revenue

30. Mertz v. State Tax Commission

31. Miami Citizens National Bank and Trust Company v. Lindley

32. Michael Todd Company v. County of Los Angeles

33. Quotron Systems, Inc. v. Comptroller of the Treasury

34. Simplicity Pattern Company, Inc. v. State Board of Equalization

35. Southern Bell Telephone and Telegraph Company v. Department of Revenue

36. Spencer Gifts, Inc. v. Director, Division of Taxation

37. State of Alabama v. Central Computer Services, Inc.

38. Texas Instruments, Inc. v. United States

39. Triangle Underwriters, Inc. v. Honeywell, Inc.

40. Ultronic Systems Corp. v. Board of Assessors of Boston

41. University Microfilms v. Scio Township

42. Walt Disney Productions v. United States(Disney I)

43. Walt Disney Productions v. United States(Disney II)

These court cases can be categorized in a number of different ways. Several of the most useful classifications, listed by case number, are given below.

Type of Tax

Sales tax(software cases) 1, 5, 11, 12, 14, 21, 27, 29, 36

Use tax(software cases) 9, 22, 28, 33, 36, 37

Property tax(software cases) 2, 18, 24, 26

Investment tax credit - software cases 38; film cases 3, 42, 43

License tax 4

## Film Cases



## Other Cases

No. 1 **ACCOUNTANTS COMPUTER SERVICES, INC. v. KOSYDAR**
**CENTRAL DATA SYSTEMS, INC. v. KOSYDAR**
**THE ANDREW JERGENS CO. v. KOSYDAR**

**35 Ohio St.2d 120, 298 N.E.2d 519 (1973)**

**SUBJECT:** Sales taxability of a sale involving both tangible personal property and personal services.

**ISSUE:** What factors should be considered in determining whether a sale involving both tangible personal property and personal services is subject to the Ohio sales tax?

**FACTS:** The above three cases involved the same question and were heard simultaneously.

(1) Accountant's Computer Services, Inc. (ACS) is a data processing company. It receives raw data in the form of punch paper tapes or adding machine tapes upon which are recorded debits and credits which constitute records of current financial transactions. ACS processes the information by machine and furnishes individual clients with printouts that are used by the customer as drafts of financial statements, books of original entry, cash receipts and disbursements journals, sales journals and general ledgers. The printouts duplicate work that, if performed manually by an accountant, would be called write-up work.

ACS contended that the work it performs constitutes a personal service, thereby making it exempt from the Ohio sales tax. Kosydar, the Tax Commissioner, contended that these transactions represent the sale of tangible personal property (printouts) and are subject to the Ohio sales tax.

(2) Central Data Systems, Inc. (CDS) provides customers with the following four categories of computing and software sales and service: (a) data processing, including the operator's time, machine time and the various reports and supplies billed generally on a monthly basis; (b) key

punching; (c) systems design and programming, which consists of consulting, although certain computer printouts are also provided; and (d) contract consulting.

As in the prior case, taxpayer (CDS) contended that the work it performs constitutes a personal service, which is exempt from the Ohio sales tax. The Tax Commissioner alleged that these transactions represent the sale of tangible personal property (printouts) and are subject to the Ohio sales tax.

(3) The Andrew Jergens Company (AJC) contracted with A. C. Neilsen Company, a market research organization. Neilsen was to compile statistical data as well as to provide analysis and interpretation of data, and to assist management in making marketing decisions based on the data provided. As an integral part of the service furnished, Neilsen assigned account executives to AJC's account whose duty it was to analyze, interpret and present to AJC's management the information developed by Neilsen in a meaningful and useful manner.

Taxpayer alleged it is exempt from the Ohio sales tax. Commissioner contended that the Ohio sales tax should be assessed.

In each of these three cases, the Board of Tax Appeals affirmed the Commissioner's assessment order.

**HOLDING:** (1) The Ohio Supreme Court affirmed the decision in Accountants Computer Service, Inc., holding that such transactions are subject to the Ohio Sales tax. (2) and (3) The Court reversed the decisions in Central Data Systems, Inc. and The Andrew Jergens Company, holding that the transactions in question primarily involved the sale of a service rather than a product, thereby making them exempt from the sales tax.

(2) In Accountant's Computer Service, data was sorted, classified and rearranged by machine. Printouts were then delivered to the supplier of the raw data, and it is the supplier of the data rather than ACS that studies, alters, analyzes and adjusts printout data. Although specially trained personnel are required to operate the machine, their training is not related to the real object sought, i.e., the rearrangement of the raw material. The production of the end product was almost entirely accomplished by the data processing machine, and because of this fact the printouts in question constitute tangible personal property rather than a service.

(3) The Central Data Systems case can be distinguished from Accountant's Computer Service because, in CDS, the company's professional workers applied "thinking" as well as mechanical processing. It was the analysis and thinking skills of CDS employees that was being sold; the data processing machinery and related printouts were merely used by CDS personnel to assist them in rendering their personal service. Because the personal service was the main item contracted for, and the resulting printed matter constituted an inconsequential element for which no separate charge was made, the Court held that the sale of the tangible personal property is not subject to taxation.

(4) The Andrew Jergens Company case represents an even clearer example of a transaction involving the sale of a service rather than a product. The A. C. Neilsen Company was hired to gather, analyze and interpret data, and to assist AJC's management in making marketing decisions. It was clearly the personal service of Neilsen and its staff that was contracted for; the tangible personal property that was transferred for communication purposes was an inconsequential element without separate charge. The entire transaction is exempt from the Ohio sales tax.

In its reasoning, the Court cited several other Ohio cases where the sales tax was assessed on the entire consideration paid in transactions that involved insignificant and inconsequential amounts of personal services. No reduction was made for the portion of the consideration that was attributable to personal services. (See Recording Devices v. Bowers, 174 Ohio St. 518, 190 N.E.2d 258 (1963); Recording Devices v. Porterfield, 30 Ohio St.2d 208, 283 N.E.2d 626 (1972); Columbus Coated Fabrics v. Porterfield, 30 Ohio St.2d 307, 285 N.E.2d 50 (1972); and Koch v. Kosydar, 32 Ohio St.2d 74, 290 N.E.2d 847 (1972)). The rationale for not separating the inconsequential amount attributable to personal services from the amount attributable to tangible personal property is that: (1) nearly all transactions are, of necessity, mixed transactions involving at least a slight degree of personal service, and (2) where this degree of personal service is of insignificant consequence, both the practical problem of attributing to such service a percentage of the entire consideration paid, and the insignificant effect it would have on the amount paid in taxes, make such a distinction unreasonable and unnecessary.

The Ohio Supreme Court quoted an Arizona case (Goodyear Aircraft Corp. v. Arizona State Tax Comm., 1 Ariz. App. 302, 306, 402 P.2d 423, 427 (1965)), which set forth the following possibilities regarding mixed sales of services and property:

> "(1) The service is the main item sold and the property sold is incidental thereto and not separately charged (not a taxable sale as a sale of services).
>
> "(2) The services and property sold can be readily separated (one tax exempt and the other taxable).
>
> "(3) The service sold is incidental to the property and not separately charged (taxable in gross)"

The Arizona Court, recognizing that the category into which a vendor falls is a question of fact to be determined in light of all the evidence, stated that:

> "When there is a fixed and ascertainable relationship between the value of the article and the value of the service rendered in connection therewith so that both may be separately stated, then the vendor is engaged in both selling at retail and furnishing services and is subject to the tax as to one and tax exempt as to the other. Where the property and the services are distinct and each is a consequential element capable of ready separation, it cannot be said one is an inconsequential element within the exemption provided by the statute. See Rice v. Evatt, 144 Ohio St. 483, 59 N.E.2d 927, 157 A.L.R. 572 (1945)."

Rice V. Evatt falls in the second of the three categories mentioned above. It involved an optometrist who did not separate his charge for professional examination from his charge for glasses and other items of personal property transferred. Two separate and distinct transactions were being performed therein; one, a purely professional service, and the other purely a sale of tangible personal property. The fact that the two transactions were not billed separately is of no consequence in determining the taxability of the transactions.

No. 2

## BANK OF AMERICA NATIONAL TRUST AND SAVINGS ASSOCIATION v. COUNTY OF LOS ANGELES

**224 Cal. App.2d 108, 36 Cal. Rptr. 413 (1964)**

**SUBJECT:** Computer systems as real property.

**ISSUE:** Is a computer system subject to taxation as real property?

**FACTS:** California banks are exempt by law from the personal property tax, but not from real estate taxes. The Bank of America (BOA) installed several electronic computer systems and the County of Los Angeles (COLA) classified the systems as fixtures, and therefore subject to real estate taxation as improvements to real property.

BOA, citing sections 104 and 105 of California's Revenue and Taxation Code and section 660 of its Civil Code, asserted that an article is not a fixture unless permanently attached to the land or to improvements on the land. Intention to make a permanent addition to realty must also be considered (M.P. Moller, Inc. v. Wilson, 8 Cal.2d 31, 37, 63 P.2d 818, 821). The following seven additional reasons were also given as to why the computer systems should be considered personal property rather than real property:

> (a) the function performed is the same as that formerly performed by bookkeepers using manually operated, electrically driven mechanical equipment, (b) the dimension, weight and physical characteristics of the equipment (portability, etc.) are characteristic of personal property; (c) the method of connection (plugs) manifests a temporary condition; (d) the equipment in one case occupied only 5 percent of the building; (e) the bank moved many components in the past and intended to do so in the future; (f) the useful life of the equipment ranges from 6 to 10 years,

whereas that of the buildings is approximately 50 years, and (g) double taxation would result, since national banks pay an excess franchise tax in lieu of a personal property tax. Also cited was the case of Pajaro Valley Bank v. County of Santa Cruz, 207 Cal. App.2d 621, 24 Cal. Rptr. 639, which held that safe deposit boxes placed in a national bank vault were personal property and therefore exempt from tax.

HOLDING: The Court held that the computer systems are fixtures and are subject to the real estate tax. Some of the eighteen reasons given by the Court were: (a) the buildings themselves were special purpose buildings with raised floors and temperature and humidity controls (City of Los Angeles v. Klinker, 219 Cal. 198, 25 P.2d 826, 90 A.L.R. 148); and (b) the great expense of moving heavy equipment as well as size and weight makes for permanence of location (Southern California Telephone Co. v. State Board, 12 Cal.2d 127, 82 P.2d 422; Bell v. Bank of Perris, 52 Cal. App.2d 66, 125 P.2d 829).

NOTE: The federal investment tax credit, which may only be taken on personal property, generally may be taken on computer systems. A computer system may be classified as personal property for federal tax purposes and as real property for state tax purposes.

No. 3 **BING CROSBY PRODUCTIONS, INC. v. UNITED STATES**
**SUSSEX PICTURES, INC. v. UNITED STATES**
**MCA, INC. AND UNIVERSAL CITY STUDIOS, INC. v. UNITED STATES**

**588 F.2d 1293 (9th Cir. 1979), 79-1 USTC 9150**

SUBJECT: Film master negatives and intermediate printing articles as qualifying for the investment tax credit.

ISSUE: Are master film negatives and intermediate printing articles tangible personal property qualifying for the investment tax credit?

**FACTS:** The companies in question produce films which are shown at movie theaters, by the networks or by individual television stations. The process involved in the manufacture of these films consists of three steps. In step one, the audio and video portions are recorded and edited separately and then combined to form the master negatives. Step two involves the making of various intermediate or secondary film and tape articles from the master negatives. The final step involves the actual manufacture of the release prints. These combine the audio and video portions onto a single property which are then shown at movie theaters, by television networks, or by individual television stations. The release prints are generally struck from the different intermediate articles contained within step two.

The plaintiffs contended that the expenditures incurred in steps one and two qualify for the investment tax credit. The government contended that (1) only step one expenditures qualify for the investment tax credit; (2) if predominant use is outside the United States, then the expenditures do not qualify for the investment tax credit even though the master negatives remained within the United States for more than 50 percent of the year in question; (3) predominant use should depend on the source of income, which approach was adopted by the Tax Reform Act of 1976, or, alternatively, predominant use should be determined by the manufacturing role of the asset.

**HOLDING:** For Crosby, Sussex and MCA. In order to qualify for the investment tax credit, the property in question must be Section 38 property, which was defined to include all tangible personal property with certain specific exceptions (for property used to furnish lodging, property used by tax-exempt organizations, property used by governmental units, and property used predominantly outside of the United States). The property also had to have at least an eight year life (this rule has since been modified several times). The Tax Reform Act of 1976 refined the manner in which the investment credit was to be applied to movie and television films (P.L. 94-455 Sec. 804) by making specific rules for determining predominant use and useful life of films.

The question of whether tapes and film qualify for the investment credit has been answered by the courts on three previous occasions. In Walt Disney Productions v. United States (Disney I), 480 F.2d 66 (9th Cir. 1973), cert. denied, 415 U.S. 934, 94 S.Ct. 1451, 39 L.Ed.2d 493, the taxpayer was allowed to take the investment credit on certain motion picture negatives. No distinction was made as to which expenditures were step one and which were step two. Treasury Regulation Section 1.48-1 (F), which said that a motion picture film or tape was an intangible property and therefore ineligible for the investment credit was held invalid by the court. The court also held that the useful life of the films for investment credit purposes need not be the same as for depreciation purposes. Additionally, the court found that the basis of the films for investment credit purposes should be the same as it is for depreciation purposes.

In Walt Disney Production v. United States (Disney III), 549 F.2d 576 (9th Cir. 1976), the court found that the master negatives were tangible property within the meaning of 26 U.S.C. Sec. 48 (a)(1) (1970) and that the investment tax credit can be claimed for the production costs of such property (549 F.2d at 580). The decision also stated that the property need not be considered intangible for investment tax credit purposes just because it was treated as intangible for depreciation purposes. Although more than 50 percent of Disney's income from the films came from foreign sources, the credit was allowed because the property in question (the negatives) was located within the United States for more than 50 percent of the year.

The third case on point is Texas Instruments v. United States, 551 F.2d 599 (5th Cir. 1977). The court in Texas Instruments followed the reasoning in the Disney cases in holding that the films and tapes in question were tangible property qualifying for the investment tax credit.

In its holding, the court in Crosby, Sussex and MCA stated that:

"There is no rational reason why a distinction should be drawn between the printing articles in step #1 or step #2, and a taxpayer's entitlement to the investment credit. It would frustrate the statutory purpose of the investment credit which was found in the Disney cases to cover the motion picture and television industry, to arbitrarily attribute the production costs to only the master negatives (step #1), and not allow the credit for the intermediate printing articles (step #2)." (588 F.2d at 1299, 79-1 USTC 9150 at 86,164).

No. 4 **BOSWELL v. PARAMOUNT TELEVISION SALES, INC.**

**291 Ala. 490, 282 So.2d 892 (1973)**

**SUBJECT:** Leased motion picture films as tangible personal property subject to a privilege or license tax.

**ISSUE:** Do leased motion picture films constitute tangible personal property for Alabama privilege or license tax purposes?

**FACTS:** Paramount Television Sales filed suit to prevent Boswell, the State Commissioner of Revenue, from enforcing a portion of the Alabama Code which levies a privilege or license tax on persons engaging in the business of renting or leasing tangible personal property. Paramount supplies films or tapes to Alabama television stations on a license or lease basis. The tapes or films shipped to the television stations must be returned to Paramount within forty-eight hours after the scheduled broadcast date.

The question to be decided was whether Paramount was engaged in the business of renting or leasing tangible personal property in Alabama, which involved both a "nexus" and "tangibility" issue. Paramount contended that there was insufficient nexus for tax purposes, and that, even if there

was sufficient nexus, the essence of the transaction is an intangible right to publish and that the transfer of this right to publish or broadcast even though accompanied by delivery of tangible personal property (the films, including reels and containers) is not a rental of tangible personal property. In the absence of a license to publish or broadcast the film, the lease only gives the television stations the right to use the film.

**HOLDING:** For Boswell. Based on the facts, it was determined that Paramount had sufficient nexus for tax purposes. Furthermore, the Alabama Supreme Court held the film to be tangible personal property. In its reasoning the Court referred to Florida Association of Broadcasters v. Kirk, Fla. App., 264 So.2d 437, cert. denied, Fla. 268 So.2d 534 (1972), where the taxpayer was held liable for the sales and use tax. In that case, the taxpayer contended that it was not subject to the tax because the use of the films was not a sale or rental of tangible personal property. The taxpayer tried, unsuccessfully, to distinguish between money paid for the actual physical film and that paid for the right to use the film. The Florida Court rejected this argument and noted:

> "Every purchase or rental of property is the acquisition of the right to use that property for its intended purposes. Likewise, practically every piece of property subject to rent or sale is a product of someone's original idea and the rental thereof is for the purpose of using it." (264 So.2d at 438).

Another case cited by the Alabama Court held that the license to publish without the physical transfer of films would be valueless. (See United Artists Corp. v. Taylor, 273 N.Y. 334, 7 N.E.2d 254 (1937)).

The Alabama Court also cited a Tennessee decision that held the operators of motion picture theaters liable for the sales tax on rented film from producers. (See Crescent Amusement Co. v. Carson, 187 Tenn. 112, 213 S.W.2d 27 (1948)).

The Arkansas Supreme Court held in American Television Co. v. Hervey, 490 S.W.2d 796 (1973) that a levy of a use tax on video tape material used by television stations pursuant to license agreements is a tax on tangible personal property. That Court said:

> "We agree with the state that the right to use property cannot be separated from the property itself and the 'right' spoken of by appellant would have no value except for the use of the tape or film--the two cannot be separated." (490 S.W.2d at 799).

No. 5 **BULLOCK v. STATISTICAL TABULATING CORPORATION**

**549 S.W.2d 166 (Texas, 1977)**

**SUBJECT:** Tangibility of computer software for sales tax purposes.

**ISSUE:** Is computer software tangible property subject to the Texas sales tax, where the data contained in the software is furnished by the purchaser?

**FACTS:** Statistical Tabulating Corporation (STC) is engaged in various aspects of data processing. The allegedly taxable transaction in question occurs as follows. A customer brings raw data, i.e., business records, invoices, and the like to STC. Data are then translated or transferred into a code which a computer can read and which, in this instance, is represented by holes punched in a particular order on data processing cards. The coded data may also be transmitted by tapes or by telephone in addition to cards. Key punch cards are then delivered to the customer with an instruction sheet.

STC's employees make this transfer or translation of data on a key punch machine. The operation of the machine is similar to the operation of a typewriter or typeset machine. The key punch operator "types" and thereby transfers the data onto the cards in accordance with an instruction sheet prepared either by the customer or by STC following the customer's directions. The instruction sheet contains 80 columns as does each data processing card and provides a code for the translation and for the "reading" of the cards thereafter by the customer.

After receiving the cards, the customer programs his computer in accordance with the instruction sheet. The cards are read by the computer and the information retained in the "memory" of the machine is permanently available to the customer on print-out sheets. The cards have no further use.

STC supplies the cards used in the transaction and pays a sales tax when it buys the cards from a distributor. Customers are billed by STC on either an hourly labor rate or upon a flat rate per thousand cards. There is no separate charge to the customer for the cards. Except in a minimal sense, there is no charge for the cards. The charge is for the transfer or translation of the data on to the cards.

HOLDING: For STC. Aspects of STC's business in which customers bring in raw data and bought STC's processing capabilities in effecting a translation of the data so that it would become perceptible to a computer, does not involve a "sale of tangible personal property at retail" so as to result in such aspect of the business being subject to sales tax.

Texas Statute Article 20.01(k) defines "sale" as follows:

> (1) (a) "Sale" means and includes any transfer of title or possession...in any manner or by any means whatsoever, of tangible personal property for a consideration.

(2) "Sale" includes (a) the producing fabrication, processing, printing, or imprinting of tangible personal property for a consideration for consumers who furnish, either directly or indirectly, the materials used in the producing, fabricating, processing, printing or imprinting.

The pertinent parts of Texas Statute Article 20 are:

Art. 20.02

There is hereby imposed a limited sales tax at the rate of three and one-fourth percent (3-1/4%) on the receipts from the sale at retail of all taxable items within this State.

Art. 20.01(W)

Taxable Items. "Taxable Items" means tangible personal property.

Art. 20.01(P)

Tangible Personal Property. "Tangible Personal Property" means personal property which may be seen, weighed, measured, felt or touched, or which is in any other manner perceptible to the senses.

Art. 20.01(D)

Receipts. (1) "Receipts means the total amount of the sale or lease or rental price...of the retail sales of taxable items by retailers...without any deduction on account of any of the following: ...(b) the cost of the materials used, labor or services costs, interest paid, losses or other expenses.

The present Court agreed with STC's contention that the test used to determine whether a transaction is a sale should be the same as that used in Williams and Lee Scouting Service, Inc. v. Calvert, 452 S.W.2d 789 (Tex. Civ. App. 1970). That case held that if the object or the essence of the sale is not tangible personal property but intangible property then the transaction is not taxable under any definition of "sale."

STC argued, and the Court agreed, that the true object of the transaction in the present case is not the data processing card, as contended by Bullock, but the purchase of coded or processed data, an intangible. The essence of the transaction for the customer is an intangible product, coded data, and STC's capabilities in making the translation or coding. The coded data could be transmitted from STC's key punch machine to customer's computer in several forms, i.e., tapes and telephones, as well as cards.

In Williams and Lee Scouting, supra, the Court found that the object of the transaction for the plaintiff's subscribing customers was the scouting service provided by plaintiff. Current statistical data on oil and gas well production was continuously gathered in the field by Williams and Lee Scouting Service employees. The data was compiled and mailed to subscribing customers in regular reports duplicated by offset printing at the plaintiff's office. The Comptroller (Calvert) attempted to tax the whole transaction because a tangible item, the printed report, changed hands.

In the transactions in the present case, as in Williams and Lee Scouting, the customers are desirous of something beyond the tangible object involved in the transaction. As in Williams and Lee Scouting, the information could have been transformed into several forms. While this transaction is closer to just printing alone than the transaction in Williams and Lee Scouting, the element of service here is still the "essence of the transaction." Although tangible personal property, i.e., cards, does change hands, the receipt of the cards does not constitute the essence of the transaction, the basic purpose of the customer in entering into the transaction.

NOTE: Tex. Admin. Code title 34, Sec. 3.308 exempts both prewritten (including home computer game cartridges) and custom programs from sales taxation. Also see Janesville Data Center, Inc. v. Wisconsin Department of Revenue, 84 Wis.2d 341, 267 N.W.2d 656 (1978).

No. 6

**BUNKER-RAMO CORP. v. PORTERFIELD**

**21 Ohio St.2d 231, 257 N.E.2d 365 (1970)**

SUBJECT: Sales taxability of the electronic dissemination of stock exchange information.

ISSUE: Does the electronic dissemination of stock exchange data for a fee constitute the sale of property subject to the Ohio sales tax, or does it constitute the sale of a personal service not subject to the Ohio sales tax?

FACTS: Bunker-Ramo (BR) provided stock brokers and security dealers with stock exchange information electronically for a fee. As part of the agreement, BR installed tangible personal property to receive the electronic transmissions on the customer's premises at a cost to BR varying between $6,644 and $16,522. Approximately 110 BR employees are engaged in customer servicing and the reception, editing, transformation and preparation of raw data that is eventually transmitted to subscribers. BR employees make frequent visits to subscriber premises to correct errors.

BR contended that the transmission of this data constitutes a personal service and is therefore not subject to the Ohio sales tax. The Tax Commissioner alleged that such transmissions constitute the sale of tangible personal property subject to the sales tax.

**HOLDING:** For Tax Commissioner. Citing American District Telegraph Co. v. Porterfield, 15 Ohio St.2d 92, 238 N.E.2d 782 (1968), Randall Park Jockey Club v. Peck, 162 Ohio St. 245, 122 N.E.2d 787 (1954), and Recording Devices Inc. v. Bowers, 174 Ohio St. 518, 190 N.E.2d 258 (1963), the Court stated that BR's transactions would be considered sales because they involve the transfer of possession and licenses to use tangible personal property unless the transactions were found to be personal service transactions.

> "An examination of the record indicates that the activity which the appellee performs is a completely mechanized service transaction. It is not a personal service transaction in the sense that there are no people engaged in serving directly the subscribers of appellee. This service is rendered automatically by computers, communication lines and reception and display instruments." (257 N.E.2d 368).

While some services rendered are tailored to the personal needs of subscribers, a relatively small number of people are required to oversee, maintain and service the devices on the subscribers' premises.

No. 7 **CARL BEASLEY FORD, INC. V. BURROUGHS CORPORATION**

**361 F.Supp. 325 (E.D. Pa 1973), aff'd. 493 F.2d 1400 (3d Cir. 1974)**

**SUBJECT:** Programming cost classified as a "good" under the Uniform Commercial Code.

**ISSUE:** Are costs expended to purchase computer programs classified as service costs or product costs?

**FACTS:** Beasley, in a bundled purchase transaction, acquired computer hardware and software. The acquisition did not function properly due to faulty programming and Beasley sued for recovery of the purchase price under the Uniform Commercial Code. The hardware was virtually useless without the software. The Uniform Commercial Code provision relating to breach of contract applies only to the sale of "goods," not "services."

**HOLDING:** For Beasley, in this fact situation, the computer programs in question were treated as "goods" for Uniform Commercial Code purposes. See also Burroughs Corporation v. Joseph Uram Jewelers, Inc., 305 So.2d 215 (Fla. Dist. Ct. App. 1974).

No. 8 **CHATLOS SYSTEMS, INC. v. NATIONAL CASH REGISTER CORPORATION, INC.**

**479 F.Supp. 738 (D.N.J., 1979), 635 F.2d 1081 1980)**

**SUBJECT:** Purchase of a computer system and the Uniform Commercial Code.

**ISSUE:** Does the purchase of a computer system constitute the sale of a service or the sale of a "good"?

**FACTS:** Chatlos purchased a computer system from NCR. The system consisted of both hardware and software components and was designed to provide six functions for Chatlos: (1) accounts receivable, (2) payroll, (3) order entry, (4) inventory deletion, (5) state income tax, (6) cash receipts.

NCR represented to Chatlos that the system would solve inventory problems, result in direct savings of labor costs, and be programmed by capable NCR personnel to be "up and running" (in full operation) within six months. The system did not function as promised, and Chatlos brought an action for breach of warranty.

**HOLDING:** For Chatlos. Although this case also involved other issues, this summary will be limited to the issue of whether this transaction is governed by the Uniform Commercial Code or by common law contract law. If the sale of the computer system is deemed to be the sale of a "good" rather than the sale of a service, the transaction will be governed by the Uniform Commercial Code. In order to be classified as a "good," the property in question must be tangible.

The District Court, citing Atlas Industries, Inc. v. National Cash Register, 216 Kan. 213, 531 P.2d 41 (1975) and Acme Pump Company, Inc. v. National Cash Register, 32 Conn. Sup. 69, 337 A.2d 672 (C.C.P. 1974), held that this transaction was for the sale of goods notwithstanding the incidental service aspects and the lease arrangement (479 F.Supp. at 742-743). On appeal, both parties conceded the applicability of the Uniform Commercial Code (635 F.2d at 1084).

No. 9 **CHITTENDEN TRUST COMPANY v. KING**

**465 A.2d 1100 (Vt., 1983)**

**SUBJECT:** Tangibility of software for use tax purposes.

**ISSUE:** Does a computer tape constitute tangible personal property?

**FACTS:** The Department of Taxes (Department) assessed a compensating use tax of $471 against the Chittenden Trust Company (Bank) for the purchase of a "canned" software tape valued at $15,700. The Department classified the tape as tangible personal property, subject to taxation. The Bank contended the tape was intangible and therefore exempt from the tax.

In the case at bar, the Bank purchased the program in the form of magnetic tape. The programming information could have been carried using several other means, including punch cards, telephone lines and personal programming. The fifteen to twenty "man-years" needed to develop the "off the

shelf" program accounts for almost its total value, since a blank magnetic tape may be purchased for approximately $15. Once the information is transferred into the computer's memory, the tape is of negligible value to the Bank, and may be reused, destroyed or returned to its original distributor.

**HOLDING:** For the Department. The computer tape is tangible personal property and its sale is subject to taxation. In 32 V.S.A. Sec. 970(7), tangible personal property is defined as:

> "...personal property which may be seen, weighed, measured, felt, touched or in any other manner perceived by the senses and shall include fuel and electricity, but shall not include rights and credits, insurance policies, bills of exchange, stocks and bonds and similar evidences of indebtedness or ownership."

In holding that the computer tape was tangible personal property, the Court noted that the tape could be seen, weighed, measured and touched, and is not a right or credit. The Court rejected the Bank's contention that the "focus of the transaction" was the transfer of intangible knowledge and information, rather than the tangible magnetic tape, because the purchase of an "off-the-shelf" program does not involve the sale of personal services, but rather the sale of tangible personal property.

The Court also rejected the Bank's attempts to distinguish a computer program tape from other taxable personal property such as films, videotapes, books, cassettes and records. The reasoning was that in each, their value lies in their respective abilities to store and later display or transmit their contents, and a computer software tape is no different.

In the final page of its decision, the Court stated that:

> "It may well be that the Bank could have procured, by way of telephone or personal service, the same programming information so as to avoid a use tax. To base the tax consequences of a transaction on how it could have been structured 'would require rejection of the established tax principle that a transaction is to be given its tax effect in accordance with what actually occurred and not in accordance with what might have occurred.' Commissioner v. National Alfalfa Dehydrating & Mining Co., 417 U.S. 134, 148 (1974). This we will not do. The Bank must accept the consequences of its choice to purchase the program in the form of a tape."

Another recently decided case agrees with the holding in Chittenden. See Citizens and Southern Systems, Inc. v. South Carolina Tax Commission, S.C. Supreme Court Opinion 22024 (filed January 10, 1984).

No. 10 **CITIZENS FINANCIAL CORP. v. KOSYDAR**

**43 Ohio St.2d 148, 331 N.E.2d 435 (1975)**

**SUBJECT:** Sales taxability of a transaction involving both tangible personal property and personal services.

**ISSUE:** What factors should be considered in determining whether a sale involving both tangible personal property and personal services is subject to the Ohio sales tax?

**FACTS:** Citizens Financial is a data processing company utilizing computer equipment which is made available to the thrift industry (savings and loan associations) and to a small number of commercial accounts. The equipment is used in two ways, designated as the "off-line" method and the "on-line" method.

In the "off-line" method, the tellers at the customer savings and loan manually record the daily deposits and withdrawals, and the recorded transactions are daily delivered to the taxpayer, where the information is converted by the computer into "computer legible media." Subsequently, taxpayer delivers to the customer a "hard copy printout" which provides the customer with an accounting journal of daily transactions, thus up-dating the individual account records. A fee is charged based on the number of such accounts each customer maintains in the computer.

The "on-line" method consists of teller use of terminals which are located at the tellers' windows. Passbooks are placed in the terminals and by means of depression of appropriate keys, the transaction (deposit, withdrawal or loan payment) is transmitted via telephone lines to taxpayer's computers. The computers then make the programmed calculation, printing the transaction on both the customer's passbook and upon a print-out at the terminal. Subsequently, a hard copy journal of transactions is delivered by taxpayer to the customer. A fee is charged, as in the off-line method.

Taxpayer's contention with respect to the off-line method is that the "printout" received by the customer is an inconsequential element of a personal service transaction for which no separate charge is made, and is therefore excepted from the sales tax. Taxpayer contended also that the use of its equipment by customers in connection with the on-line method does not constitute a license for such use, but is a part of its programming and related personal service, and such use is an inconsequential element for which no separate charge is made and is excepted from the sales tax.

**HOLDING:** For Kosydar. The record supported the finding that real object sought by savings and loan organizations in off-line transactions with taxpayer, which was data processing company and which made computer equipment available to savings and loan organizations, were print-outs of daily account activities and thus such transactions did not come within the sales tax exception for personal service transactions involving transfer of tangible

personal property as an inconsequential element of the transfer, and that the record supported the finding that the real object sought by organizations in on-line transactions was use of taxpayer's computer system and thus such transactions came within the sales tax statutory definition of "sale," which includes all transactions where a license to use tangible personal property is granted for consideration.

Accountant's Computer Services, Inc. v. Kosydar, 35 Ohio St.2d 120, 298 N.E.2d 519 (1973) provides the criteria for determining whether a sale of tangible personal property is excepted from taxation under the last sentence of R.C. 5739.01(B). Such sentence reads, " 'sale' and 'selling' do not include professional, insurance, or personal service transactions which involve the transfer of tangible personal property as an inconsequential element, for which no separate charges are made."

Paragraph one of the syllabus in Accountant's Computer Services recites, in part:

> "If a consequential service is rendered, then it must be ascertained whether the transfer of the tangible personal property was an inconsequential element of the transaction."

Paragraph two of the syllabus then leads to the more specific determination which is necessary for ascertaining whether in a mixed transaction (including both personal service and transfer of tangible personal property), as here, the transfer of tangible personal property is an inconsequential element of the transaction. The test recited in Accountant's Computer Services is whether: "* * * the real object sought by the buyer (is) the service per se or the property produced by the service." As stated in the syllabus a distinction must be made as to the "true object of the transaction contract."

The Court concluded that the real object sought by the taxpayer's customers was the property produced, i.e., "hard copy printouts," and that such transactions are subject to the sales tax.

The next issue to be decided was the taxability of "on-line" transactions. Of relevance here is the first sentence of R.C. 5739.01(B), which reads, in pertinent part, that "sale" shall include all transactions where "* * * a license to use or consume tangible personal property is or is to be granted * * * for a consideration in any manner * * *."

Taxpayer argues, as in the off-line method, that the use of its equipment by its customers is inconsequential as relates to its computer system and programming thereof, and constitutes a personal service transaction under the last sentence of R.C. 5739.01(B) which grants exception for "* * * personal service transactions which involve the transfer of tangible personal property as an inconsequential element, for which no separate charges are made."

The Court's holding that "on-line" transactions are taxable was based on the finding that the overall service was not substantially made by the persons rendering the service, and a personal service transaction did not occur. The Court cited Koch v. Kosydar, 32 Ohio St.2d 74, 290 N.E.2d 847 (1972) as to the criteria to be used in determining whether a personal service transaction exists.

DISSENT: In his dissent, Justice Paul W. Brown, pointing to his dissent in United States Shoe Corp. v. Kosydar, 41 Ohio St.2d 68, 322 N.E.2d 668 (1975), stated that the personal service exception must be seriously distorted before it can be construed to impose a tax upon a service transaction. He also cites appendix 2--3.2d of 1 Bigelow, Computer Law Service (1975), State Sales and Use Taxes, which indicates that similar transactions would be exempt from the sales tax had they occurred in Connecticut, Louisiana, New York, Texas, Virginia, Washington or Wisconsin.

NOTE: For a detailed analysis of this case, see Michael J. Bayer, "Citizens Financial Corporation v. Kosydar: Data Processing and the Ohio Sales Tax Service Exemption." Capital University Law Review, 1977, 663-672.

No. 11 COMMERCE UNION BANK v. TIDWELL

538 S.W.2d 405 (Tenn. 1976)

**SUBJECT:** Tangibility of computer software for Tennessee sales tax purposes.

**ISSUE:** Is computer software tangible property subject to the Tennessee sales tax?

**FACTS:** Commerce Union Bank (CUB) purchased computer software for use in its business. The Commissioner of Revenue (Tidwell) assessed a tax deficiency against CUB, alleging that the transfer was one of tangible personal property subject to the Tennessee sales tax. The Tennessee statute defined tangible personal property as "personal property, which may be seen, weighed, measured, felt, or touched, or is in any other manner perceptible to the senses." The tax deficiency was paid under protest and CUB filed suit to obtain a refund.

CUB alleged that while the intellectual processes may be embodied in tangible and physical material, such as punch cards and magnetic tapes, the logic or intelligence of the program is an intangible property right, and it is this intangible property right which is acquired when computer software is purchased or leased.

Tidwell viewed the purchase of software as analogous to the purchase of a phonograph record or the purchase or lease of a motion picture film. He argued that the present case is governed by Crescent Amusement Co. v. Carson, 187 Tenn. 112, 213 S.W.2d 27 (1948), where a tax was levied on the rental of motion picture films.

**HOLDING:** For Commerce Union Bank. The sale of computer software does not constitute the sale of tangible personal property for purposes of the Tennessee sales tax.

In its brief, CUB argued that, while the intellectual processes may be embodied in tangible and physical material, such as punch cards and magnetic tapes, the logic or intelligence of the program is an intangible property right; and it is this intangible property right which is acquired when computer software is purchased or leased.

Tidwell's argument that the purchase of software is analogous to the purchase of a phonograph record or the purchase or lease of a motion picture film is based on Crescent Amusement Co. v. Carson, 187 Tenn. 112, 213 S.W.2d 27 (1948). In that case, a tax was levied on the rental of motion picture film. In that case, the Court rejected Crescent's contention that the rental of the film was merely the extension of a license to use and exhibit a copyrighted production which amounts only to the use of an intangible property right.

However, the examples given in the Crescent case differ from the situation in this case in that no product is created. What is created and sold here is information, and the magnetic tapes which contain this information are only a method of transmitting these intellectual creations from the original to the user. It is merely incidental that these intangibles are transmitted by way of a tangible reel of tape that is not even retained by the user.

In Crescent, the tax was levied on the rental of a motion picture film. The film is inherently related to the movie; without the film there could have been no movie. Therein lies the crucial difference. Magnetic tapes and cards are not a crucial element of software. The whole of computer software could be transmitted orally or electronically without any tangible manifestations of transmission (See Heinzman, "Computer Software--Should It Be Treated as Tangible Property for Ad Valorem Tax?" The Journal of Taxation, September, 1972).

The State of Tennessee did not attempt to tax computer programs purchased by CUB which were transmitted to its computers from outside the State by way of telephone lines. Without question, that method of transmission constitutes the purchase of intangible personal property. The principle is the same, only the method of transmitting the information is different.

Tidwell maintained that the sale of a phonograph record, which is taxable as tangible personal property, and the sale of a computer program on a reel of magnetic tape are analogous. One who buys a phonograph record intends to obtain possession of a tangible item. Granted, the sound which emanates from the record when it is played is the object of the purchase; but the purchaser has no other viable method of bringing the music into the living room. The phonograph record remains in the possession of the purchaser after its purchase, both during periods of use and non-use.

Commerce Union Bank v. Tidwell presented a different situation. A magnetic tape is only one method whereby information may be transmitted from the originator to the computer of the user. That same information may be transmitted from the originator to the user by way of telephone lines, or it may be fed into the user's computer directly by the originator of the program.

When the information is transferred from the tape to the computer, the tape is no longer of any value to the user; and it is not retained in the possession of the user. The information on the tape, unlike the phonograph record, is not complete and ready to be used at the time of its purchase. It must be translated into a language understood by the computer. Once this information has been translated and introduced into the computer and the tapes returned or the punch cards destroyed, what actually remains in the computer is intangible knowledge; this is what was purchased, not the magnetic tapes or the punch cards (See District of Columbia v. Universal Computer Associates, Inc., 151 U.S. App. D.C. 30, 465 F.2d 615 (1972)).

Transfer of tangible personal property under these circumstances is merely incidental to the purchase of the intangible knowledge and information stored on the tapes. (See Washington Times-Herald, Inc. v. District of Columbia, 94 U.S. App. D.C. 154, 213 F.2d 23 (1954)). There the newspaper had purchased from an artist the right to reproduce his cartoons. These cartoons were transferred to the newspaper and were physically embodied in mats which were then used to reproduce the cartoons in the newspaper. In that case the Court held that what the newspaper had purchased was the right to reproduce the cartoons, and not the material upon which the cartoons were impressed.

In a closely analogous case (Dun & Bradstreet v. City of New York, 276 N.Y. 198, 11 N.E.2d 728 (1937)), the New York Court of Appeals held that financial informational services rendered to clients of Dun & Bradstreet were nontaxable even though reference books containing financial information were delivered to the subscribers. No separate charge was made for the books, and they could not be obtained without subscribing to the service. Also, in that case, as here, the same service could have been rendered without transferring the reference books, but the cost of the service would have been much higher.

**NOTE:** The result in this case was subsequently changed by Tenn. Code Sec. 67-3002(b), which calls for the sales taxation of both prewritten and custom programs.

No. 12 **COMPTROLLER OF THE TREASURY v. EQUITABLE TRUST COMPANY**

**464 A.2d 248 (Md., 1983)**

**SUBJECT:** Tangibility of software for sales tax purposes.

**ISSUE:** Does the purchase of a "canned" or "off-the-shelf" program on magnetic tape constitute a transaction upon which sales tax can be assessed?

**FACTS:** Equitable entered into several license agreements whereby it obtained the nontransferable and non-exclusive right to use several programs in perpetuity. Legal title remained with the licensor.

The Comptroller alleged that these transactions constitute transactions involving tangible personal property, namely, magnetic tapes which had been enhanced in value by the copies of the programs coded thereon, and are subject to sales tax. In its amicus brief, the Data Processing Management Association (DPMA) contended that the transactions were licenses to use the programs, and that such licenses are a form of intangible property. Equitable contended that the predominant purpose or essence of the transaction governs classification of the sale as involving either tangible or intangible property. In the transfer of computer programs via magnetic tape, the purpose is to obtain the program, an intangible, and not the tangible tape. In taking this position, Equitable is supported by the overwhelming numerical majority of reported cases applying tax statutes restricted to tangible personal property.

**HOLDING:** For Comptroller. Equitable acquired tangible personal property, namely, magnetic tapes which had been enhanced in value by the copies of the programs coded thereon. The licenses do not grant intangible rights from the proprietors to Equitable, but simply erect contractual limitations on the use which Equitable might otherwise make of the statutorily unprotected program copies it acquired. (The analysis set out here is more fully developed in "Software and Sales Taxes: The Illusory Intangible," 63 B.U.L. Rev. 181 (1983)).

Equitable's principal argument is that the Court should conceptually sever the program copy contained on the magnetic tape from the tangible tape itself. The argument is that the transaction should be viewed as operating on two levels, one the transfer of intangible knowledge or information and the other the delivery of a tangible tape. To have a scalpel for this legal surgery, it would be necessary to adopt as part of Maryland sales tax law a principle that the buyer's predominant purpose for a transaction controls the classification of the acquisition as either tangible or intangible.

Quotron Systems v. Comptroller, 287 Md. 178, 411 A.2d 439 (1980), recognized a predominant purpose test as one of several factors in determining use tax applicability to the type of transaction presented there. That taxpayer undertook concurrently to render two types of interrelated performances. One was to maintain and continuously to update a computerized data bank of economic information, such as the selling prices of securities, which its customers could randomly access through remote terminals. The other was to install Quotron-owned hardware, including the remote terminals, on customers' premises for their use in requesting and receiving electronic transmissions of the economic data. In Quotron, the Court held that the first analytical step was to characterize the performance as a single, overall function, either rental of equipment or the provision of services. (Id. at 186, 411 A.2d at 443). The dominant purpose was to obtain services and not to rent hardware. Based on that factor, on the taxpayer's retention of control over the hardware, and on the fact that Quotron's hardware could not be obtained without subscribing to the service, the Court concluded that the transaction was the provision of services. (Id. at 188, 411 A.2d at 444). This approach is quite similar to that which the Court used to determine whether a contract of sale is one for goods or for services under Article 2 of the Uniform Commercial Code, where the performance involves both.

See Anthony Pools v. Sheehan, 295 Md. 285, 455 A.2d 434 (1983); Burton v. Artery Company, 279 Md. 94, 367 A.2d 935 (1977); Quotron did not say that the dominant purpose of obtaining data made the subject of the contract intangible because information is intangible.

The rule of Quotron has been implicitly applied in Equitable on an aspect which is not disputed by Equitable. In addition to providing program copies on tape, each licensor agreed to furnish certain installation services. One licensor also contracted to furnish a limited amount of training within the fixed contract price.

The "dominant purpose" test of whether the property in question is being purchased for its own sake or for the (intangible) information contained therein can also be applied, by analogy, to books, motion picture films, video display discs, phonorecords and music tapes. In sales of these items, the purchaser's dominant purpose ordinarily is to obtain the knowledge, information or data thereby conveyed. While the book is in human readable form, the other media are machine readable. A purchase of any of these information conveying media is within the imposition of the sales tax as tangible personal property. Such transactions escape taxation only if there is an applicable statutory exclusion or exemption. These analogies, however, have been argued to other courts which have held that tape copies of programs are intangible.

The Court in Equitable rejected the reasoning of the long line of cases that hold taped copies to be intangible because of alleged misconceptions in the technological underpinnings of these decisions, and because of the apparent departures in reasoning from that usually applied in sales tax cases. Secondly, there was a substantial question whether the decision that set the course for the line of program cases, District of Columbia v. Universal Computer Associates, Inc., 465 F.2d 615 (D.C. Cir. 1972), is consistent with Maryland law.

Furthermore, a tape containing a copy of a canned program does not lose its tangible character, because its content is a reproduction of the product of intellectual effort, just as the phonorecord does not become intangible, because it is a reproduction of the product of artistic effort. The price paid for a copy of a canned program reflects the cost of developing the program which the proprietor hopes to recover, with profit, by spreading the cost among its customers. Simply because the canned program on tape is much more expensive than the typical phonorecord, the program tape is not any less tangible.

The Court stated that Equitable's intangibility argument would have merit if the direct input by keyboard, without documentation, alternative (a service transaction) or the electronic transmission, without documentation, alternative (no tangible carrier) is the form of transaction under consideration. But, because a taxable transaction might have been structured in a nontaxable form, it does not thereby become nontaxable. This form over substance argument was also adopted by the Court in Chittenden Trust Company v. King, 465 A.2d 1100 (Vt., 1983).

Finally, Equitable argues that a purchased program "can be and was in fact severed and exists apart from the tangible transfer medium...". However, the copy delivered to Equitable does not become severed in any physical sense from the tape when the tape is used to structure computer memory.

The Equitable Court did not discern any legally significant difference for sales tax purposes between the canned computer program on magnetic tape and music on a phonograph record. As stated in the National Commission on New Technological Uses of Copyrighted Works, Final Report at 10 (1978): "Both recorded music and computer programs are sets of information in a form which, when passed over a magnetized head, cause minute currents to flow in such a way that desired physical work is accomplished." In the case of the phonograph record, the sales tax statute in Maryland has never been viewed as conceptually severing the copy of the performance from the tangible carrier. The Court concluded that the statute does not sever copies of computer programs from the tangible carriers employed in the subject sales.

Also see, Citizens and Southern Systems, Inc. v. South Carolina Tax Commission, Opinion No. 22024 (filed January 10, 1984).

No. 13 **COMPUTER SCIENCES CORPORATION v. COMMISSIONER OF INTERNAL REVENUE**

**63 T.C. 327 (1974)**

**SUBJECT:** Tangibility of computer software for collapsible corporation purposes.

**ISSUE:** Is computer software tangible property, intangible property or no property for purposes of Section 341 of the Internal Revenue Code relating to collapsible corporations?

**FACTS:** Computax, a wholly-owned subsidiary of Computer Sciences Corporation, owned a program for the computer preparation of income tax returns. The IRS contended that a collapsible corporation had been set up with the intent of avoiding taxes. Petitioner (CSC) claims that property manufactured, constructed or produced (such as the Computax program) by a taxpayer as used in Section 341 of the Internal Revenue Code (relating to collapsible corporations) was not intended to apply to intangible property of any type, and, if the section were intended to refer to intangible property, that no such intangible property was produced since all that CSC produced and developed for transfer to Computax was "know-how" and goodwill which is not "property."

**HOLDING:** Computer software is to be regarded as intangible personal property for purposes of Section 341 relating to collapsible corporations.

No. 14 **COUNTY OF SACRAMENTO v. ASSESSMENT APPEALS BOARD**

**32 Cal. App.3d 654, 108 Cal. Rptr. 434 (1973)**

**SUBJECT:** Tangibility of computer software for sales tax purposes.

**ISSUE:** Is computer software tangible property subject to the California sales tax?

FACTS: Data processing equipment and systems were furnished on a conditional sales basis to the State of California. The tax assessor, in assessing the sales tax liability, valued the property at the full contract price. The equipment and systems in question consisted of both hardware and software components.

HOLDING: The tax assessor was in error when he valued the property at full contract price. The portion of the contract price attributable to software represents intangible property not subject to the sales tax.

No. 15 **CREDIT BUREAU OF MIAMI COUNTY, INC. v. COLLINS**

**50 Ohio St.2d 270, 364 N.E.2d 27 (1977)**

SUBJECT: Sales taxability of a transaction involving both tangible personal property and personal services.

ISSUE: Whether the transfer of a written credit report is excepted from the Ohio sales tax.

FACTS: Taxpayer is engaged in the business of consumer credit reporting. It maintains approximately 50,000 files and gathers information from the County and Federal Courthouses as well as from credit applications that are forwarded to taxpayer from credit grantors.

Most requests for credit information are received by the taxpayer's employees by telephone inquiry, and in 80 percent of the inquiries, an oral report is given to the customer. These oral reports were not held subject to the sales tax in the finding of the Tax Commissioner.

Where a written report is requested, an employee, who has just given an oral report, prepares a written report using various forms which provide the same information as if given orally except that the report is written and sent to the customer.

It is necessary that taxpayer's employees take the information maintained in a subject's file, organize the information, screen it for obsolete information and transmit the current pertinent information to the requesting client. In addition, taxpayer's employees are required in some cases to update the information by making an independent verification of information contained in a subject's file, including checking references.

The requesting customer who subscribes to taxpayer's service, then determines, on the basis of the credit information received from taxpayer's employees, as well as other information, whether to grant credit to the subject applicant.

The price of each written report is higher than each oral report, and no matter how many written reports are made, the price per report remains constant, with no reduction to the customer for more written reports.

The Tax Commissioner contended that these transactions constitute the sale of tangible personal property and are therefore subject to the Ohio sales tax. Credit Bureau contended that these transactions fall within the exemption of R.C. 5739.01(B), which states that:

> "...'sale' and 'selling' do not include professional, insurance, or personal service transactions which involve the transfer of tangible personal property as an inconsequential element, for which no separate charges are made."

**HOLDING:** For Credit Bureau. The issue is determined based on whether the transaction involves an inconsequential transfer of personal property. If it does not, the exemption does not apply and the entire transaction is taxable. See Accountant's Computer Services v. Kosydar, 35 Ohio St.2d 120, 298 N.E.2d 519 (1973); Spray Wax Car Wash v. Collins, 46 Ohio St.2d 164, 346 N.E.2d 696 (1976); Federated Department Stores v. Kosydar, 45 Ohio St.2d 1, 340 N.E.2d 840 (1976); and, Citizens Financial Corp. v. Kosydar, 43 Ohio St.2d 148, 331 N.E.2d 435 (1975). In light of the above-mentioned cases, the Court must examine the real

object sought by the buyer, i.e., the service per se or the property produced by the service, and determine whether it was the buyer's object to obtain an act done personally by an individual as an economic service involving either the intellectual or manual personal effort of an individual, or if it was the buyer's object to obtain the salable end product of some individual's skill.

In the instant case the lower court held that when a written credit report was transferred to a customer, the true object of the transaction was not the acquisition of the taxpayer's personal services, but the receipt of the taxpayer's credit report. That Court was influenced by the apparent similarities of the Credit Bureau's activities with those of the taxpayer in Accountant's Computer Services. As with Accountant's Computer Services, the taxpayer, in the opinion of the lower court, collected, classified, and rearranged raw data that proved useful to a particular group of clients. In addition, the lower court stated that, since the taxpayer's activities failed to include any "analysis" of the information collected or any "thinking" as applied to its customers' business problems, the taxpayer's services were similar to the data processing transactions that the Ohio court found taxable in Accountant's Computer Services, and Citizens Financial Corp. v. Kosydar. (See also, Lindner Bros. v. Kosydar, 46 Ohio St.2d 162, 346 N.E.2d 690 (1976)).

Challenging the lower court's conclusions, Credit Bureau contended that where the entire operation of a consumer reporting agency, including both the assembling and recording of credit information with respect to consumers and the preparation of both oral and written credit reports communicating credit information for a monetary fee to those legally entitled to receive such, is personally performed by employees of the agency, the communication of such information constitutes "personal service transactions" within the purview of R.C. 5739.01(B). The delivery, by mail or otherwise, of pieces of paper on which such written consumer reports are prepared, even if considered as involving a transfer of "tangible personal

property" under the provisions of R.C. 5739.01(B), constitutes merely a transfer of tangible personal property as an inconsequential element of the transaction for which no separate charges are made.

From an analysis of the fact situation in this case, the Ohio Supreme Court concluded that the true object sought by taxpayer's customers was the credit information communicated in the report. Although, as a matter of convenience or preference, a written report may be requested, it is the receipt of information which necessarily constitutes the sine qua non of the transaction between the consumer reporting agency and the person to whom such information is communicated. Moreover, unlike the taxpayer in Accountant's Computer Services, taxpayer prepares and transmits both oral and written credit reports which involve the intellectual and manual skills of the taxpayer's employees. Records are checked for suits, judgments, liens, bankruptcies and other legal actions. Credit histories are summarized and coded. Pursuant to the Fair Credit Reporting Act, Section 1681, et seq., Title 15, U.S. Code, obsolete information must be excluded, reasonable procedures must be designed to avoid factual inaccuracies, and the credit files must be periodically updated and independently verified. Moreover, in distributing credit reports, the taxpayer's employees must ascertain the identity of those seeking credit information and their right to receive such reports pursuant to Section 1681b, Title 15, U.S. Code. Failure to perform any of the aforementioned duties exposes the offender to either criminal or civil penalties. Section 1681r and o, Title 15, U.S.Code.

Although the commissioner argued Citizens Financial Corp. v. Kosydar, and Federated Department Stores v. Kosydar, controlling in this case, the Ohio Supreme Court disagreed and held that the principles as set forth in Accountant's Computer Services are controlling.

No. 16 CRESCENT AMUSEMENT COMPANY v. CARSON

187 Tenn. 112, 213 S.W.2d 27 (1948)

**SUBJECT:** Motion picture film as tangible personal property subject to sales tax.

**ISSUES:** Is the rental of a motion picture film a rental of tangible personal property subject to the Tennessee sales tax, and if it is, what is the proper measure of the tax, the gross proceeds paid to the producer for the rental of the film print or the cost of the physical material in the film print?

**FACTS:** The Tennessee Sales Tax Law (Chapter 3, Public Acts of 1947) levies a 2 percent privilege tax on the gross amount paid for the rental of tangible personal property. The Appellant, Crescent Amusement Company, operates motion picture theaters in Tennessee. The pictures shown are obtained by renting film prints from producers. The pictures are imprinted on a roll of celluloid averaging 10,000 feet in length. Through the use of machinery, the pictures are projected onto a screen, together with sound effects. The cost of the celluloid roll varies between $175 and $1050, depending on length and quality of material used. The cost of producing the movie that is on the celluloid roll may be as much as a million dollars, depending on material, labor and other costs (actors' salaries, scenery, equipment, etc.)

The picture is owned by a producer, who rents the film print to theater owners, who pay rent to the producer based on a percentage of gross receipt.

The Tennessee Sales Tax Law defines tangible personal property as that "...which may be seen, weighed, measured, felt, or touched, or is in any other manner perceptible to the senses."

Appellee (Carson, Commissioner of Finance and Taxation) contended that such transactions are taxable under the Tennessee Sales Tax Law and that the correct measure of the tax is the gross amount paid to the producer for the film rental. Appellant insists that such transactions merely grant

them the right to exhibit a copyrighted production, which is an intangible property right not subject to a sales tax which is levied on personal property.

**HOLDING:** For appellee (Carson). The rental or leasing of motion picture films is a rental or leasing of tangible personal property within the meaning of the Tennessee Sales Tax Law, and the correct measure of the tax is the gross amount of rent paid. Citing Saverio v. Carson (186 Tenn.166; 208 S.W.2d 1018 (1948)), the Court stated (213 S.W.2d 27 at 29) that:

> "There is scarcely to be found any article susceptible to sale or rent that is not the result of an idea, genius, skill and labor applied to a physical substance. A loaf of bread is the result of the skill and labor of the cook who mixed the physical ingredients and applied heat at the temperature and consistency her judgment dictated. A radio is the result of the thought of a genius, or of several such persons, combined with the skill and labor of trained technicians applied to a tangible mass of substance. An automobile is the result of all these elements, and of patents, etc.; and so on, and infinitum. If these elements should be separated from the finished product and the sales tax applied only to the cost of the raw material, the sales tax act would, for all practical purposes, be entirely destroyed."

**OTHER CASES--**

**APPELLEE:** The appellee cited several cases in support of his position. In United Artists Corp. v. Taylor, 273 N.Y. 334, 7 N.E.2d 254 (1937), the Court, in holding that the New York City sales tax law applied to the lease of a movie film print, said:

"The transaction which is the subject of the tax under review consists of the transfer by the distributor to the exhibitor of the possession of corpeal property in the form of positive and negative prints of photoplays with the license to use or exhibit them for a specified time. The license to exhibit without the transfer of possession would be valueless. Together they are one transaction and constitute a sale within the definition of Local Law No. 24."

In Saenger Realty Corp. v. Grosjean, 194 La. 470, 193 So. 710, the Louisiana Supreme Court held that the operator of a movie theater was liable for the Louisiana sales tax and that the measure of the tax was the amount paid to the producer for the lease of the film print. Other cases cited by the appellee include: Bigsby v. Johnson, Cal. Sup., 99 P.2d 268 (1940); People ex. rel. Walker Engraving Corp. v. Graves, 243 App. Div. 652, 276 N.Y.S. 674; 268 N.Y. 648, 198 N.E. 539; Voss v. Gray, 70 N.D. 727, 298 N.W.1; Cusick v. Commonwealth, 260 Ky. 204, 84 S.W.2d 14; State Tax Commission v. Hopkins, 234 Ala. 556, 176 So. 210.

**OTHER CASES--**

**APPELLANT:** The appellant cited Burgess Co. v. Ames, 359 Ill. 427, 194 N.E. 565, which held that the right to reproduce a musical composition is a license rather than a transfer of tangible personal property. Also cited were A.B.C. Electrotype Co. v. Ames, 364 Ill. 360, 4 N.E.2d 476, and Adair v. Ames, 364 Ill. 342, 4 N.E.2d 481, which held that printers and electrotypers, respectively, are engaged in furnishing skill and labor rather than tangible personalty in the printed matter produced.

**NOTE:** In 1951, the legislature changed the result of this case by exempting theaters which pay the 2 percent privilege tax from operation of the sales and use tax. T.C.A. Sec. 67-3013. However, the present Tennessee Code (Sec. 67-3002(b)) taxes both prewritten and custom programs.

No. 17 DISTRICT OF COLUMBIA v. NORWOOD STUDIOS, INC.

336 F.2d 746 (D.C. Cir. 1964)

**SUBJECT:** Motion picture film produced for television as tangible personal property subject to sales tax.

**ISSUE:** Is the sale of a motion picture produced under contract for television the sale of personal services or the sale of a product subject to the sales tax?

**FACTS:** Norwood Studios produced under contract a series of motion picture films for television and sold them to the AFL-CIO. The sales tax was assessed and the District of Columbia Tax Court set the assessment aside on the grounds that the transactions were "personal service transactions" in which the "tangible personal property supplied by the petitioner to AFL-CIO was an inconsequential element," and was therefore not subject to the sales tax.

**HOLDING:** The U.S. Court of Appeals held the sales to be sales of personal property subject to the sales tax. Citing, People ex. rel. Walker Engraving Corp. v. Graves, 268 N.Y. 648, 198 N.E. 539, the Court reasoned that the production and transfer of printed material and the like is not personal service but a sale. The Court cited the California Supreme Court case of Bigsby v. Johnson, 99 P.2d 268, in which printers argued that they did not make sales but transferred personal services. The California Supreme Court rejected that contention, stating that: "when one places an order for printed matter he desires not merely service but the delivery to him of the finished product and... within the meaning of the Retail Sales Tax Act the printer is engaged in selling the printed matter to him."

In a prior case decided by this same Circuit Court of Appeals (Washington Times-Herald v. District of Columbia, 94 U.S. App. D.C. 154, 213 F.2d 23 (1954)), a different conclusion was reached where "mats" were furnished (but not sold) to newspapers

for printing comic strips on a one-time basis. The Court reasoned that the sale of all interests constitutes a sale for sales tax purposes, but the sale of a one-time right to use property does not.

No. 18 **DISTRICT OF COLUMBIA v. UNIVERSAL COMPUTER ASSOCIATES**

**465 F.2d 615 (D.C. Cir. 1972)**

**SUBJECT:** Tangibility of computer software for personal property tax purposes.

**ISSUE:** Is computer software intangible, and therefore not subject to the District of Columbia personal property tax?

**FACTS:** Universal purchased a data processing unit from IBM for approximately $290,000. Included in the purchase price were the computer machinery itself (hardware) and two sets of punched cards (software). One set of punched cards was a standard set used to run the computer. Ownership of this software was retained by IBM with the understanding that Universal was not to transfer the card or the information contained thereon to third parties. The other set of cards was a special tax program developed jointly by personnel from IBM and Universal and owned outright by Universal. This special tax package represents $106,000 of the $290,000 total purchase price.

The District of Columbia Tax Court ruled that the software portion of the purchase was intangible and was not subject to the personal property tax, and that the portion representing hardware was tangible and subject to the tax. The $290,000 purchase price was allocated 50 percent to the hardware and 50 percent to the software.

In the present case, one expert witness testified that hardware in the computer field generally amounts to only about ten or twenty percent of the purchase price. Another witness testified that software "in some cases goes up as high as fifty or fifty-five percent of the total purchase price."

**HOLDING:** For the District of Columbia. The material of the punched cards themselves is of insignificant value. It was the knowledge contained in the cards that gave them value, and knowledge is intangible. The Court likened computer software to the cartoon mats involved in Washington Times-Herald v. District of Columbia, 94 U.S. App. D.C. 154, 213 F.2d 23 (1954), where it was held that cartoon mats which were sold by publishing syndicates to individual newspapers were not tangible personal property subject to the District of Columbia sales tax. The rationale in that case was as follows:

> "The syndicates sold to the Times-Herald the right to reproduce one time the work of artists who make the drawings. They simply sold the professional and personal services of the artists whom they had under contract and in so doing transferred title to the mats, of inconsequential value, from which the drawing could be reproduced. The price was paid for the artists' work, i.e., for the right to reproduce the impressions on the mats--not for the mats themselves. The newspaper bought the creation of the artist--not the material on which it was impressed--and the right to reproduce it. Without that right, the comic strips mats would be entirely worthless." (94 U.S. App. D.C. 155, 213 F.2d 24 (1954)).

In the present case, the Court is of the opinion that the knowledge stored on computer cards, tapes, or discs is even more demonstrably intangible intellectual property than the right to reproduce from the cartoonist's drawings involved in Washington Times-Herald.

The present case is distinguished from District of Columbia v. Norwood Studios, Inc., 118 U.S. App. D.C. 358, 336 F.2d 746 (1964), which involved the transfer of films where the producer of the films retained no interest in them and imposed no restriction on their use. The films became the property of the purchasers without qualification.

Two other considerations were also cited as lending support to the argument that software costs can be stated separately from hardware costs. Since 1969, IBM has been billing hardware and software sales separately. Of greater significance is the Internal Revenue Service rule (Rev. Proc. 69-21, 1969-2 Cum. Bull. 303) that permits the separation of software and hardware for depreciation purposes.

No. 19 **F & M SCHAEFER CORPORATION v. ELECTRONIC DATA SYSTEMS CORPORATION**

**430 F.Supp. 988 (S.D.N.Y. 1977), aff'd. mem. 614 F.2d 1286 (2d Cir. 1979)**

**SUBJECT:** Replevin action for a data processing system; also breach of contract.

**ISSUE:** Is software (1) intangible and therefore (2) not subject to replevin?

**FACTS:** Schaefer had contracted for the development and supply of data processing services with Electronic Data Systems Corporation (EDS). Schaefer alleged breach of contract and asked for rescission (cancellation of the contract and a return to the status quo). EDS counterclaimed and moved for replevin (to get the system back) of the data processing system.

With one exception, the remainder of the facts are not relevant for purposes of this treatise, because this case deals with contract law rather than with the nature of software. The one exception is this: Schaefer argued that the system developed by EDS is a body of intangibles, that

is, concepts or ideas, and consists wholly of services rendered by EDS. Likening the system to a recorded song for which Schaefer supplied a blank disc, Schaefer says that just as a song cannot be replevied, so software in a data processing system cannot be made the subject of replevin.

HOLDING: The Court found the data processing system in this case to be tangible. Schaefer's argument was unpersuasive partially because Schaefer offered no case under New York law or any other law which holds that a data processing system is intangible or cannot be subject to replevin. While there may be intangible parts of the system, such as the training given Schaefer's employees in how to operate the system, for example, those intangible parts of the system, if they are part of it at all, are not a part of the present motion for replevin. What EDS seeks are the tapes, the instructions, all supporting documentation and all copies of same.

No. 20 **FINGERHUT PRODUCTS COMPANY v. COMMISSIONER OF REVENUE**

**258 N.W.2d 606 (Minn. 1977)**

SUBJECT: Tangibility of typed and purchased mailing labels for Minnesota use tax purposes.

ISSUE: Are typed or purchased mailing labels tangible personal property for purposes of the Minnesota use tax?

FACTS: Fingerhut is a direct mail merchandiser of a wide range of consumer products. It both solicits its customers and sells its products exclusively by mail.

To enhance the success of its mailing operation, Fingerhut attempts to solicit business only from selected individuals. Thus, roughly one-half of the sales literature is sent to persons who have previously purchased items by mail from Fingerhut. The remainder of the names and addresses are obtained from mailing lists that are rented from mailing--list brokers. The names supplied by the

broker are intended for one-time use only and come in the form of Cheshire tapes, gummed labels, heat transfers and typed mailing lists. For this service, Fingerhut paid a rental fee of $17.50 to $25 per thousand names. The value of the tangible material upon which the names and addresses are printed is approximately 80 cents per thousand.

The Commissioner assessed a tax deficiency on the rental of these lists, and on the typed mailing lists, asserting that the lists constituted tangible personal property. Fingerhut contended that the essence of what it received from the brokers was not a physical list of names but rather a service which supplied highly sophisticated advertising information which was an intangible commodity.

**HOLDING:** Typed mailing lists used by Fingerhut were not subject to taxation, but mailing lists in the form of Cheshire tapes, gummed labels, and heat transfers which were attached to envelopes and placed in the mail constituted tangible personal property subject to the use tax.

To support its argument, Fingerhut relied on Dun & Bradstreet v. City of New York, 276 N.Y. 198, 11 N.E.2d 728 (1937), where the New York Court of Appeals considered the applicability of a local sales tax law in relationship to the rendition of professional services. In that case, the taxpayer was in the business of supplying to its subscribers highly confidential information dealing with the financial standing of persons engaged in various businesses. As an incident to this service, each subscriber received for his own personal use a reference book at no extra charge.

In refusing to allow the city of New York to tax the value of this reference book, the Court articulated two factors that have since been used by other Courts to distinguish tangible personalty from intangibles. First, the subscriber was able to make only a limited use of the books. Under the subscription contracts, title to the books remained in the taxpayer and the subscriber was expressly forbidden to share the confidential information contained therein with the public.

Second, and more important, the physical properties of the reference book were merely incidental to the services performed. As explained by the Court (276 N.Y. 205, 11 N.E.2d 731):

> "...The information furnished is of value to the subscribers and for it they pay but not for the paper upon which the information is conveyed or for the reference books which are only guides to assist in the rendition of appellant's service. One does not think of a telephone company as a seller of books to its subscribers. It renders a service to make that service efficient, it furnishes its subscribers with books containing a list of its subscribers with their call numbers. The paper is a mere incident; the skilled service is that which is required."

Fingerhut maintained that its procurement and use of the mailing lists supplied by its brokers satisfies both of these criteria. As in Dun & Bradstreet, the use that may be made of the lists is sharply restricted. Ordinarily, the brokers permit the lists to be used only once, and Fingerhut is required to make its mailings between rigidly set dates. Moreover, the value of the tangible format containing the names and addresses, estimated at approximately 80 cents per thousand names, is slight when compared to the $17.50 to $25 price of a corresponding number of names. Many of the lists also have a limited useful life. For instance, a list that would be useful in selling seat covers to new car owners may have a useful life expectancy of only 6 months. Lastly, it would have been possible for Fingerhut to obtain the information on the mailing lists, albeit with considerable inconvenience, without the interference of a tangible medium. The names and addresses could have been transmitted orally by telephone, or someone could have contacted the broker and manually copied the information from the broker's lists.

The Commissioner advanced the argument that, in this case, the taxpayer acquired a tangible commodity, i.e., tapes, labels, etc., which were used when they were physically attached to the mailings. The fact that these labels were more valuable because of the information they contained does not, in the view of the Commissioner, alter their nature as tangible personal property.

Subsequent to the Dun & Bradstreet case, a number of courts struggled to develop meaningful tests to distinguish the sale or use of intangible services from personalty. Some courts have looked to the value of the tangible format used as contrasted to the value of the item sold. For example, in Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976), the court based its finding that the sale of a computer program was not subject to sales tax in part on the fact that the value of the cards containing the program was only a small fraction of the total cost. Another approach that has been used is to assess whether or not the transaction has a temporary or transitory value. If what is sold is something like marketing or research data that has a very short useful life, there is a greater likelihood that the transaction is a nontaxable service. (See Williams & Lee Scouting Service, Inc. v. Calvert, 452 S.W.2d 789 (Tex. Civ. App. 1970)). A final consideration is whether the transaction can be achieved without the intervention of a tangible medium. Returning to the computer program example discussed in Commerce Union Bank v. Tidwell, supra, there can be no taxable transfer when a program is transmitted by the seller to the buyer's computer electronically, as by transmission through a telephone line. Motion pictures, on the other hand, cannot exist without the tangible celluloid medium, and therefore courts have uniformly subjected their rental value to use tax. (See Florida Association of Broadcasters v. Kirk, 264 So.2d 437 (Fla. Dist. App. 1972); Crescent Amusement Co. v. Carson, 187 Tenn. 112, 213 S.W.2d 27 (1948)).

The Court in Fingerhut felt that the use of typed mailing lists did not constitute the taxable use of tangible property. However, use of the other property was held to constitute a taxable event. At 258 N.W.2d 610, the Court said:

> "We feel that the use of the Cheshire tapes, gummed labels, and heat transfers is...sufficiently distinguishable from the use of the typed mailing lists to justify imposition of the use tax. In these instances there is a use of the tangible property of the medium distinct from the use of the typed mailing lists, in that the tapes and labels are physically separated and attached to the envelopes. In such a case, the physical manifestation of the property is itself used--not merely the intangible information.
>
> This distinction is...sufficiently great to justify a different treatment for tax purposes of the typed mailing lists and the other rental mailing lists in the form of Cheshire tapes, gummed labels, and heat transfers."

No. 21 **FIRST NATIONAL BANK OF FORT WORTH v. BULLOCK**

**584 S.W.2d 548 (Tex. Civ. App. 1979)**

**SUBJECT:** Applicability of the Texas sales tax to computer software.

**ISSUE:** Do standardized or "canned" or prewritten programs constitute tangible personal property subject to the Texas sales tax?

**FACTS:** Bank paid over $109,000 for four standardized programs or sets of instructions (computer software) which enabled its computer to perform deposit and lending functions and process general accounting. The software was contained on magnetic tapes, but the information could have been transmitted by keypunch cards, telephone or various other methods.

The law places a tax on a sale of tangible personal property. Tangible personal property is defined as "personal property which may be seen, weighed, measured, felt or touched, or which is in any other manner perceptible to the senses." (Tex. Tax--Gen. Ann. Art. 20.01(P) (1969)). To determine whether a sale is of tangible or intangible property, the courts apply the "essence of the transaction" test. (Bullock v. Statistical Tabulating Corp., 549 S.W.2d 166 (Tex. 1977)). If the object or essence of the sale is intangible property, then the transaction is not taxable. An important factor to be considered in arriving at this determination is the fact that the desired information could have been transferred in several different ways (Williams and Lee Scouting Service, Inc. v. Calvert, 452 S.W.2d 789 (Tex. Civ. App. 1970)).

In Statistical Tabulating, the Court held that processed data contained in a coded computer card was an intangible and not taxable. In Williams and Lee Scouting, statistical data on oil and gas well production was compiled and mailed to subscribers in printed reports each week. The sale was not taxed. The purchasers in both Williams and Lee Scouting and Statistical Tabulating were desirous of something beyond the tangible object involved in the transaction. Unlike a phonograph record or filmstrip when the information on the tape, in the present case, is transferred to the computer, the tape is no longer of any value or importance to the user (State v. Central Computer Services, Inc., 349 So.2d 1160 (Ala. 1977); Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976)).

Bullock contended that this case is distinguishable from Statistical Tabulating in that the software in the latter case was "customized," because it was developed specially for the purchaser. The tapes in the present case are "canned" programs, since they are standard items sold to numerous customers with only slight modifications to conform to each purchaser's use. The service characteristic is present only with "customized" programs, according to Bullock.

**HOLDING:** For Bank. The Court did not agree with Bullock's argument that only "customized" programs should be exempt from the sales tax. The test in each case is not whether the product is "customized" or "canned," but whether the object of the sale is tangible personal property (See District of Columbia v. Universal Computer Associates, Inc., 151 U.S. App. D.C. 30, 465 F.2d 615 (1972); Commerce Union Bank v. Tidwell, supra). In Williams and Lee Scouting, the weekly report of oil and gas data was a "canned" publication in that the same information was mailed to many subscribers.

No. 22

**FIRST NATIONAL BANK OF SPRINGFIELD**
**v.**
**DEPARTMENT OF REVENUE**

**85 Ill.2d 84, 421 N.E.2d 175 (1981)**

**SUBJECT:** Tangibility of software for use tax purposes.

**ISSUE:** Does the sale of applicational programs (as opposed to operational programs) constitute the sale of tangible personal property subject to the Illinois use tax, where the data is contained on magnetic tape?

**FACTS:** The First National Bank of Springfield (FNB) purchased five applicational programs from five different sources. All programs were delivered on magnetic tape, but could have been conveyed to the bank by discs, punch cards or over the telephone. Upon delivery, the information was removed from the tapes and stored elsewhere, at which point the tapes could either be used again or discarded.

FNB contended that the magnetic tapes in question here constituted intangible personal property, because they were, in essence, merely a means of conveying programming instructions. FNB argued that software primarily represents intangible services and not tangible goods. The Department, on the contrary, contended that the physical qualities of the tapes predominate over the information contained on them. The Department compared the

tapes to films, phonograph records and books. All three examples, the Department argued, represent the physical manifestation of intangible ideas and artistic achievement, yet all three are taxable as tangible personal property.

In Time, Inc. v. Hulman, 31 Ill.2d 344 (1964), the Illinois court decided that magazines are tangible personal property and that the proceeds from their sale would be subject to the retailers' occupation tax were it not for an exclusion afforded to newspapers and other materials "such as" newsprint. (31 Ill.2d 344, 351-52). In discussing whether magazines are tangible personal property, it was said:

> "The sale of magazines is essentially not different from the sale of a loaf of bread, or an automobile. While it is true that the utility or value of plaintiffs' magazines is in their content and not the paper and ink with which they are printed, the taxability of the transaction is not determined by weighing the value of the intangible properties of the item of sale, such as form, organization and design, against the value of its tangible properties, such as weight, size and texture. The test is, where tangible personal property is transferred, as the parties agree occurs in the transaction here involved, whether the transfer is the substance of the transaction or merely incidental to a service. In selling magazines by subscriptions, plaintiffs act as retailers of tangible personal property and as such are liable for retailer's occupation tax, if not otherwise exempt." (31 Ill.2d 344, 350).

In Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976), the Supreme Court of Tennessee held that computer software in the form of magnetic tapes or punch cards is intangible personal property and, therefore, not subject to that State's sales and use tax. The court reasoned that only information was being created and sold, "and the magnetic tapes which contain this information are

only a method of transmitting these intellectual creations from the originator to the user. It is merely incidental that these intangibles are transmitted by way of a tangible reel of tape that is not even retained by the user." (538 S.W.2d 405, 407).

The case of First National Bank v. Bullock, 584 S.W.2d 548 (Tex. Civ. App. 1979), is nearly on all fours with this case. The bank in that case obtained licenses to use four programs, that is, software, which instructed the bank's computer to perform deposit and lending functions and process general accounting. The information was contained, as here, on magnetic tapes. The court stated that it would look to the "essence of the transaction" to determine whether the property purchased was tangible or intangible. (548 S.W.2d 548, 550.) The court held that, since the information on the tapes could have been communicated in several different ways, and the computer could even have been programmed over the telephone or by hand, the essence of the purchase was not the tapes, but the process which enabled the computer to function. The software was therefore in essence intangible personal property and the bank was not required to pay a sales and use tax for the licenses it purchased (584 S.W.2d 548, 551).

HOLDING: For First National Bank. The Illinois Court previously held that where a service of skill was rendered in the manufacture of a special milling machine for the particular and exclusive use of a purchaser, the sale of the product was not taxable where it was merely incidental to the service. (Ingersoll Milling Machine Co. v. Department of Revenue, 405, Ill. 367, 372-373 (1950)). The instant case is of a similar vein. The plaintiff bank purchased, in substance, the means of programming its computer so that it could perform functions the bank needed to have performed. The bank did not desire to spend the money or time to formulate the programs through its own data processing staff. Therefore, it purchased instruction programs from other sources. It simply happened that, for the sake of convenience and easy handling, the programs were recorded on magnetic tapes. The tapes were certainly not the only medium through which the information could be

transferred. In this way, the tapes differ from a movie film, a phonograph record or a book, whereby the media used are the only practicable ways of preserving those articles.

Thus, while those articles and the tapes are similar in that they physically represent the transfer of ideas or artistic processes, a more significant distinction is that those articles are inseparable from the ideas or processes, whereas computer programs are separable from the tapes. Not only may software information be conveyed any number of ways, but it may even be copied off of the tapes and stored, using another medium. (See Bryant and Mather, "Property Taxation of Computer Software," 18 New York Law Forum 59, 67 (1972)). In short, it is not the tapes which are the substance of the transaction, it is the information.

The Court held that the sale of computer software in this instance is, in substance, the transfer of intangible personal property and, as such, is not taxable under the Illinois Use Tax Act. In support of its position, the Court cited: First National Bank v. Bullock, 584 S.W.2d 548 (Tex. Civ. App. 1979); Janesville Data Center, Inc. v. Wisconsin Department of Revenue, 84 Wis. 341, 287 N.W.2d 656 (1978); Honeywell Information Systems, Inc. v. Maricopa County, 118 Ariz. 171, 575 P.2d 801 (1978); State v. Central Computer Services, Inc., 349 So.2d 1160 (Ala. 1977); Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976); District of Columbia v. Universal Computer Associates, Inc., 465 F.2d 615 (D.C. Cir. 1972); County of Sacramento v. Assessment Appeals Board No. 2, 32 Cal. App.3d 654, 108 Cal. Rptr. 434 (1973). Also cited was Cal. Revenue & Tax Code Secs. 995, 995.1, and 995.2 (West. Supp. 1974), which subjects operational software to property taxation, but exempts applicational software. See also Honeywell, Inc. v. Lithonia Lighting, Inc., 317 F.Supp. 406 (N.D. Ga. 1970); Also Greyhound Computer Corp. v. State Department of Assessments and Taxation, 271 Md. 674, 320 A.2d 52 (1974), which held that only so much of software as consists of services is intangible and not taxable.

No. 23 **GENERAL DATA CORP. v. PORTERFIELD**

**21 Ohio St.2d 233, 257 N.E.2d 359 (1970)**

**SUBJECT:** Computer hardware and the Ohio use tax.

**ISSUE:** Is the installation and use of computer equipment used almost exclusively for the dissemination of hotel reservation information a taxable event for Ohio use tax purposes?

**FACTS:** General Data Corporation leases terminals to its parent, Holiday Inns of America, for use in its international reservation system. A fee of $2.50 per rental guest room per month was charged. The Tax Commissioner assessed a use tax based on the rentals collected for the terminals.

**HOLDING:** For Data General Corporation. Such an assessment was found to be an unlawful tax burden on interstate commerce, which is prohibited by Section 8, Clause 3, Article I of the United States Constitution. Furthermore, the terminals are excepted from the Ohio use tax because they are used directly and almost exclusively in making retail sales.

No. 24 **GREYHOUND COMPUTER CORPORATION**
**v.**
**STATE DEPARTMENT OF ASSESSMENTS AND TAXATION**

**271 Md. 674, 320 A.2d 52 (1974)**

**SUBJECT:** Tangibility of bundled computer software for personal property tax purposes.

**ISSUE:** To what extent is bundled computer software considered tangible personal property subject to the Maryland personal property tax?

**FACTS:** Greyhound purchased four computer systems from IBM and leased them to Bendix Corporation. The systems purchased consisted of both hardware and software elements, but the portion of the purchase price attributable to each of these two elements was not separately stated. Maryland treated the cost of the software as inseparable from that of the hardware and based its assessment on aggregate purchase price, less depreciation, without allocating the cost of the software package between tangible property acquired and services to be rendered. Some of the software acquired consisted of punched cards, magnetic tapes and instructions covering operation and applications, which may be considered of a tangible nature. The remaining software consisted of personal services to be rendered after the purchase, and included systems engineering services, educational services and maintenance.

Greyhound contended that:

1. Software is not tangible personal property subject to tax;

2. The Department may not assess software--having substantial values--as as if it were tangible personal property merely because certain elements of the software have been placed upon or relate to certain tangible items like cards or magnetic tapes which have insignificant value; and

3. The tax court's finding that "software" was not severable from, and was an integral part of, hardware is unsupported by substantial evidence.

**HOLDING:** The Court held that it was error to treat the cost of computer software as inseparable from that of hardware and to base assessment on aggregate purchase price, less depreciation, without allocating the cost of the software package between tangible property acquired and services to be rendered, which are intangible and not subject to either the tangible personal property tax or the intangible personal property tax. The case was remanded for further proceedings.

For analogies to the film-making industry the Court cited Michael Todd Co. v. County of Los Angeles, 57 Cal.2d 684, 21 Cal. Rptr. 604, 371 P.2d 340 (1962), and District of Columbia v. Norwood Studios, Inc., 118 U.S. App. D.C. 358, 336 F.2d 746 (1964). This analogy was challenged in Heinzman, "Computer Software: Should It Be Treated as Tangible Property for Ad Valorem Tax?" Journal of Taxation 184, 185-186 (1972).

Two cases rejecting the idea that software is taxable as tangible property are District of Columbia v. Universal Computer Associates, Inc., 465 F.2d 615 (D.C. Cir. 1972) and County of Sacramento v. Assessment Appeals Board, 32 Cal. App.3d 654, 671, 108 Cal. Rptr. 434, 446 (1973).

No. 25 **HELVEY v. WABASH COUNTY REMC**

**151 Ind. App. 176, 278 N.E.2d 608 (1972)**

**SUBJECT:** The nature of electrical energy.

**ISSUE:** Is the sale of electrical energy the sale of a "good" or the furnishing of a service?

**FACTS:** Helvey filed an action against REMC for breach of implied and express warranties, for damages caused to certain 110 volt household appliances. The damage was the result of REMC furnishing electricity of 135 or more volts. Suit was filed four years and two months after the incident.

Helvey contended that electrical energy is not a transaction in goods but rather a furnishing of a service, and that a 6 year statute of limitation applies. REMC contended that electricity is a "good" within the meaning of the Uniform Commercial Code, and that a four year statute of limitations applies.

**HOLDING:** For REMC. In order to be a "good" under the Uniform Commercial Code, the property in question must be (1) a thing; (2) existing; and, (3) movable, with (2) and (3) existing simultaneously. The Court held that electricity qualifies in each respect.

No. 26 **HONEYWELL INFORMATION SYSTEMS v. MARICOPA COUNTY**

**118 Ariz. 171, 575 P.2d 801 (Ct. App. 1978)**

**SUBJECT:** Property taxation of computer software.

**ISSUE:** Whether the value of intangible software should be excluded from the property tax computation in cases where the taxpayer company sells hardware and software as a unit (bundles).

**FACTS:** Honeywell sold a variety of computer services and listed the price of each service in its catalog. The price of each service was "bundled," that is, a separate price for the hardware and software portions was not separately stated. Software services accounted for approximately 24.4 percent of list price, on average. Honeywell offered various discounts off list price averaging slightly more than 8 percent, although some discounts were as much as 20 percent.

Arizona assessed a personal property tax based on the list price of the bundled hardware and software and did not consider actual selling prices. Some of Honeywell's competitors, most notably IBM and Control Data, market their computer hardware at one price and most of their software services at separately stated prices. Arizona does not attempt to tax the software services of these companies.

Honeywell contended that:

> (1) Software is intangible and should not be taxed. If hardware and software are bundled, the hardware and software components should be separated for property tax purposes.
>
> (2) Catalog list prices are not the proper measure of the tax. Actual selling prices should be used instead.

(3) Honeywell is being discriminated against because it is being taxed on the value of its software, whereas companies that state the prices of hardware and software separately are not taxed on the software component.

**HOLDING:** For Honeywell. Although the issue of software intangibility had never before been raised in the Arizona court system, the Court agreed with Honeywell that software is intangible. Its decision was heavily influenced by the decisions in District of Columbia v. Universal Computer Associates, Inc., 151 U.S. App. D.C. 30, 465 F.2d 615 (1972); County of Sacramento v. Assessment Appeals Board, 32 Cal. App.3d 654, 108 Cal. Rptr. 434 (1973); and Greyhound Computer Corporation v. State Department of Assessment and Taxation, 271 Md. 674, 320 A.2d 52 (1974). The Court also cited three articles where the authors concluded the property taxation of intangible computer software to be unjustified (Martin, "The Revolt Against the Property Tax on Software: An Unnecessary Conflict Growing Out of Unbundling," 9 Suffolk Univ. L. Rev., 118 (1974); Bryant and Mather, "Property Taxation of Computer Software," 18 N.Y.L.F. 59 (1972); and Heinzman, "Computer Software: Should It be Treated as Tangible Property for Ad Valorum Tax?" 37 Journal of Taxation 184 (1972)). The Court also noted that the valuation guidelines for electronic data processing equipment of the International Association of Assessing Officers, of which the officials in Maricopa County responsible for the assessment in this case are members, states that "in these valuation cases wherein the prices have not yet been unbundled, in the interest of uniformity the assessor has the duty of taking these intangible services out of the value." (International Association of Assessing Officers (IAAO), Electronic Data Processing Equipment: Valuation Guidelines, Special Report, 1972, at 11).

The Court also agreed that fair market value, rather than catalog price, is the proper measure for property tax purposes (575 P.2d. at 807), based on Burns v. Herberger, 17 Ariz. App. 462, 498 P.2d 536 (1972) and State Tax Commission v. United Verde Extension Mining Co., 39 Ariz. 331, 6 P.2d 889 (1931). Thus, discounts as well as the portion of the selling price represented by software should be taken into account when assessing the property tax.

Finally, the Court found that Honeywell was being deliberately and systematically discriminated against in the valuation of the electronic data processing equipment in question. Honeywell was assessed for the software component and other computer companies were not. Furthermore, the County Assessor's Office had a policy of not taxing intangible software services and made no effort to assess personal property tax on the value of software services supplied by the many independent software houses and service bureaus operating in Maricopa County.

No. 27

**INTELLIDATA INCORPORATED v. STATE BOARD OF EQUALIZATION**

**139 Cal. App.3d 594, 188 Cal. Rptr. 850 (1983)**

**SUBJECT:** Sales taxation of keypunch cards.

**ISSUE:** Is computer software tangible property where the data contained in the software is furnished by the purchaser?

**FACTS:** Intellidata Incorporated is a computer service bureau. Among other operations it provides keypunching services for corporations that own their own computer. The keypunching service may be described as follows:

Plaintiff's customer delivered raw data such as sales invoices, inventory cards, billings, etc. Plaintiff was instructed on what information from each such business record must be transposed onto computer-readable keypunch cards. The keypunch cards, supplied by plaintiff, come in a standard

size and shape and, at the time in question, were universally used in the data processing industry. Data was transposed onto the cards by use of a keypunching machine which has alphabetic letters the same as a typewriter and a numerical keyboard similar to a 10-key adding machine. The skills of a keypunch operator are similar to those of a typist.

After plaintiff's employees keypunched the cards, they were delivered to plaintiff's customers. The customer used the cards to input the information into its computer. After the cards were read by the computer they had no further use to the customer and were usually destroyed or recycled.

Plaintiff purchased the cards and paid the tax on them. However, plaintiff's customers were not billed for the cards used. Plaintiff considered the consumption of the cards to be part of the hourly rate it charged its customers for the service the cost of the cards constituting approximately two percent of the overall cost to the customer.

Plaintiff's principal contention, both at trial and on appeal, was that gross receipts from the sale of keypunching services are exempt from sales tax because the true object of the transactions between plaintiff and its customers are the services rendered by plaintiff and not the media on which the services are delivered.

California Administrative Code, title 18, section 1502 specifically deals with automatic data processing services and equipment. Subsection (2) of subdivision (d) of that section (hereinafter "keypunching regulation") states in pertinent part: "...agreements providing solely for keypunching; keypunching and keystroke verification; or keypunching, providing a proof list and/or verifying of data, are regarded as contracts for the fabrication of punched cards and sales of proof lists. Charges therefor are taxable, whether the cards are furnished by the customer or by the service bureau."

Plaintiff contended that defendant, through administrative regulation, has extended the sales tax beyond that which the Legislature intended. Plaintiff asserted that defendant does not have the right to tax an activity that was not deemed taxable under the enabling statutes. It continues that since keypunching constitutes a nontaxable service rather than a taxable sale of keypunch cards, the keypunching regulation must be held an unconstitutional act of legislation.

**HOLDING:** For the State Board of Equalization. The court held that the regulation did not overreach legislative intent. In its holding, the court cited three other California cases. In People v. Grazer, 138 Cal. App.2d 274, 291 P.2d 957 (1956), the court held that the transfer of X-ray films and the radiologist's findings which accompanied the films from the radiologist to the physician constituted a taxable sale. In reaching this conclusion the court stated that "the raw materials consumed in producing that which (the physician) ordered may have cost the laboratory only a very small part of the charge made. The expense of the producer of the pictures is almost entirely the cost of the skilled services of the radiologist and the technicians and the use of equipment which is generally quite costly. But the price charged for all taxable transfers is more often than not largely a charge for services rendered in connection with the tangible object transferred." (Id. at p. 278).

The same reasoning was followed in Albers v. State Board of Equalization, 237 Cal. App.2d 494, 47 Cal. Rptr. 69 (1965), where the court held that the work of a commercial draftsman making drawings for architects, engineers and business firms based on specifications and data furnished by customers constituted a sale of tangible personal property.

The Intellidata court also cited Simplicity Pattern Co. v. State Board of Equalization, 27 Cal.3d 900, 167 Cal. Rptr. 366, 615 P.2d 555 (1980), which stood for the proposition that tangible property may be taxed on the basis of its total value even though virtually all of the value is attributed to an intangible element such as intellectual content.

The court also made mention of Bullock v. Statistical Tabulating Corp., 549 S.W.2d 166 (Tex. 1977), which held a contrary view for a similar fact situation, but stated that the decision in Statistical Tabulating was only persuasive, not binding, because it was not decided in California.

No. 28 **JAMES v. TRES COMPUTER SERVICE, INC.**

**642 S.W.2d 347 (Mo., 1982)**

**SUBJECT:** Tangibility of "canned" software for use tax purposes.

**ISSUE:** Is the sale of "canned" software a taxable event?

**FACTS:** TRES Computer Service sold "canned" software to a variety of customers on a non-exclusive basis. The transaction at issue involved a sale to a Missouri customer through the use of tapes containing the data and programs. The retail value of the tapes before they contain any information is fifty dollars. The Missouri customer paid TRES approximately $135,000 for the data and programs.

TRES reported to the Missouri Department of Revenue that the transaction involved fifty dollars--i.e., the retail value of the tapes. In July 1979, the Department of Revenue determined that TRES should pay a use tax based on the $135,000 transaction value of the software. Accordingly, the Department of Revenue made an additional tax assessment of $4,218.75, plus $421.88 penalty, plus $295.32 in interest. TRES did not pay any of the additional assessment.

At the Administrative Hearing level, the parties stipulated that: (1) the data is intangible property; (2) the tapes on which the data is contained and transmitted is tangible personal property; and (3) TRES could have transmitted the data and programs to its customers electronically.

The Director of Revenue contended that the computer software is taxable as tangible personal property because the data and programs are inseparable from the tapes containing them. TRES, on the other hand, views the tapes as mere conduits or containers for the intangible professional services sold.

**HOLDING:** For TRES. The computer data and programs were intangible personal property, and they did not become tangible personal property by reason of their presence on magnetic tapes.

In its opinion, the Court in TRES noted that other courts have addressed the issue, and have ruled that the intangible character is not lost. See State v. Central Computer Services, Inc., 349 So.2d 1160 (Ala. 1977); Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976); and, First National Bank of Fort Worth v. Bullock, 584 S.W.2d 548 (Tex. Civ. App. 1979).

Other courts apply the "essence of the transaction" test, whereby the data on the tapes is merely an incidental physical commingling of the tangible tapes and the intangible information which is actually the subject of the transaction. See State v. Central Computer Services, Inc., 349 So.2d 1160 (Ala. 1977); First National Bank of Springfield v. Department of Revenue, 85 Ill.2d 84, 51 Ill. Dec. 667, 421 N.E.2d 175 (1981).

In a related test, the court attempts to discover the intent of the parties. If they intend that the tapes serve only to convey the computer data and then be discarded, the value of the professional services is not considered taxable as tangible personal property. E.g., First National Bank of Fort Worth v. Bullock, supra; see also, Texas Instruments, Inc. v. United States, 407 F.Supp. 1326 (N.D Texas 1976). By comparison, the court in Commerce Union Bank v. Tidwell, supra, sought to ascertain whether a finished product was created and sold, as opposed to whether information was being conveyed. 538 S.W.2d at 107. The Tidwell court decided that computer data and programs were being conveyed and therefore the information's value was not taxable as tangible personal property. Id.

The Court in TRES gave several reasons why the data and programs should not be taxed as tangible personal property. First, the tapes themselves were not the ultimate object of the sale. The customer purchased them because they contained the data and programs which it desired for its computer. The tapes are merely a medium to convey the data and programs to the customer's computer. After they are used to program the computer they can be discarded. The court in Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976), said it well:

> "What is created and sold here is information and the magnetic tapes which contain this information are only a method of transmitting these intellectual creations from the originator to the user. It is merely incidental that these intangibles are transmitted by way of a tangible reel of tape that is not even retained by the user."

Commerce Union Bank v. Tidwell, 538 S.W.2d at 407. The Tidwell court also stated:

> "When the information is transferred from the tape to the computer, the tape is no longer of any value to the user; and it is not retained in the possession of the user. The information on the tape, unlike a phonograph record, is not complete and ready to be used at the time of its purchase. It must be translated into a language understood by the computer. Once this information has been translated and introduced into the computer and the tapes returned or the punch cards destroyed, what actually remains in the computer is intangible knowledge; that is what was purchased, not the magnetic tapes or the punch cards. District of Columbia v. Universal Computer Associates, Inc., 151 U.S. App. D.C. 30, 465 F.2d 615 (1972).

> Transfer of tangible personal property under these circumstances is merely incidental to the purchase of the intangible knowledge and information stored on the tapes."
>
> Commerce Union Bank v. Tidwell, 538 S.W.2d at 408; see also Janesville Data Center, Inc. v. Wisconsin Department of Revenue, 84 Wis.2d 341, 267 N.W.2d 656, 658 (1978); cf., Bullock v. Statistical Tabulating Corp., 549 S.W.2d 166 (Tex. 1977).

Second, it was not necessary that the information purchased be put on tape. It could have been sent to the customer through electronic communications and fed directly into the computer. In Tidwell the court observed:

> "A magnetic tape is only one method whereby information may be transmitted from the originator to the user by way of telephone lines, or it may be fed into the user's computer directly by the originator of the program."

Commerce Union Bank v. Tidwell, 538 S.W.2d at 408. See also State v. Central Computer Services, 349 So.2d 1160, 1162 (Ala. 1977).

The Director argued that the Hearing Commission's decision is contrary to Universal Images, Inc. v. Department of Revenue, 608 S.W.2d 417 (Mo., 1980) because there the Court held that motion picture film was taxable as tangible personal property at its transaction value. The Director equated the film with the tapes in this case. The higher Court disagreed. Instead, they embraced the idea that "(t)he physical presence of the movie film is essential to broadcasting the intangible artistic efforts of the actors." State v. Central Computer Services, 349 So.2d at 1162. This view is also shared by the Illinois Supreme Court which, in holding computer software not taxable as tangible personal property, stated:

> "The plaintiff bank purchased, in substance, the means of programming its computer so that it could perform functions the bank needed to have performed. The bank did not desire to spend the money or time to formulate the programs through its own data processing staff. Therefore, it purchased instruction programs from other sources. It simply happened that, for the sake of convenience and easy handling, the programs were recorded on magnetic tapes. The tapes were certainly not the only medium through which the information could be transferred. In this way, the tapes differ from a movie film, a phonograph record or a book, whereby the media used are the only practicable ways of preserving those articles. Thus, while those articles and the tapes are similar in that they physically represent the transfer of ideas of artistic processes, a more significant distinction is that those articles are inseparable from the ideas or processes, whereas computer programs are separable from the tapes." First National Bank of Springfield v. Department of Revenue, 85 Ill.2d 84, 51 Ill. Dec. 667, 421 N.E.2d at 178 (1981). The movie film in Universal Images was purchased as a finished product with the idea that the tangible film itself would be used and reused. The tapes in TRES are not employed in this manner, so Universal Images was held not to be controlling in this case.

The Director also contended that the Hearing Commission's decision conflicts with Kilbane v. Director of Revenue, 544 S.W.2d 9 (Mo. banc 1976) because there the Court held that the proportionate percentages of labor and material would not be considered in determining whether an item was taxable as tangible personal property. In Kilbane, the appellant operated a dental laboratory and a sales tax was imposed on the sale of bridgework and crowns to dentists. As one of his arguments,

he contended that there should be no sales tax on the entire transaction value of the bridgework and crowns because 80% to 95% of its value was labor, whereas only 5% to 20% was materials. The Court rejected the argument and held the dentist liable for the tax on the bridgework and crowns. Kilbane v. Department of Revenue, 544 S.W.2d at 12.

The Director's argument that Kilbane supports his position that the data and programs sold here are taxable as tangible personal property did not convince the court in TRES. In Kilbane the ultimate manifestation of the labor--the dental work sold to dentists easily fits within the definition of "tangible personal property." Those finished products were to be utilized in their manufactured form to bring about a desired result in a patient's dental health. Here, the professional services (the data and programs are intangible and remain so forever. Kilbane did not persuade the TRES court to hold that the computer tapes in this case are taxable as tangible personal property at the $135,000 transaction value.

No. 29

**JANESVILLE DATA CENTER, INC.**
**v.**
**WISCONSIN DEPARTMENT OF REVENUE**

**84 Wis.2d 341, 267 N.W.2d 656 (1978)**

**SUBJECT:** Tangibility of computer software for sales tax purposes.

**ISSUE:** Is computer software tangible property subject to the Wisconsin sales tax, where the data contained in the software is furnished by the purchaser?

**FACTS:** Data Center is a Wisconsin corporation engaged in the business of transferring to key punch cards and magnetic tapes data furnished by its customers which its customers wish to use in computers. The processed cards and tapes are delivered to the customers to be ultimately read by a computer.

The information on the cards and tapes is retained in the memory of the customer's computers. After the customers have recorded the information, the tapes but not the cards may be returned to Data Center for reuse.

Data Center purchased keypunch cards at a cost of $1.06 per thousand cards, and pays a sales tax to the supplier. The cost of the cards is included in Data Center's gross charge to its customers. About 5 percent of the customers supply their own cards, and in these cases Data Center does not impose a charge for the cost of the cards.

The Wisconsin Department of Revenue assessed a sales tax on these transactions. Data Center alleged that the object of these transactions was the sale of intangible coded information, not the sale of tangible personal property, and that the sales tax should not be imposed.

HOLDING: For Data Center. The Wisconsin Court was persuaded by the reasoning of the Supreme Court of Texas in Bullock v. Statistical Tabulating Corporation, 549 S.W.2d 166 (Tex. 1977), which had a similar fact pattern. The Texas court held that a keypunch operation was not taxable because the object of the transaction was the sale of intangible coded information, not the sale of tangible personal property. That Court said:

> "We agree with the Plaintiff's contention that the true object of this transaction is not the data processing card as contended by the Comptroller, but the purchase of coded or processed data, an intangible.
>
> "...The essence of the transaction for the customer is an intangible product, coded data, and Plaintiff's capabilities in making the translation or coding. The coded data could be transmitted from the Plaintiff's keypunch machine to customer's computer in several forms, i.e., tapes and telephones, as well as cards.

"...In the transaction before this Court, Plaintiff's customers...are desirous of something beyond the tangible object involved in the transaction. In this case, the object of the Plaintiff's customers is to obtain a great deal more than the key punch cards... While this transaction is closer to just printing alone than the transaction in (other cases), the element of service here is still the 'essence of the transaction.'

"...In determining the 'object of this transaction,' many factors are relevant. We have attempted to follow the design and purposes of the statute. The issue must be answered on a case by case basis. Although tangible personal property, i.e., cards, does change hands, the receipt of the cards does not constitute the essence of the transaction, the basic purpose of the customer in entering into the transaction." (549 S.W.2d. 166, 168, 169).

**NOTE:** Also see the holdings in Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976). Accountant's Computer Service, Inc. v. Kosydar, 35 Ohio St.2d 120, 298 N.E.2d 519 (1973); Citizens Financial Corp. v. Kosydar, 43 Ohio St.2d 148, 331 N.E.2d 435 (1975); Miami Citizens National Bank v. Lindley, 50 Ohio St.2d 249, 364 N.E.2d 25 (1977); Credit Bureau of Miami County v. Collins, 50 Ohio St.2d 270, 364 N.E.2d 27 (1977). At present, Wisconsin's Proposed Rule 11.71 would tax prewritten programs and also custom programs that are sold, leased or licensed in machine-readable form. Custom programs sold, leased or licensed in human-readable form, such as program instructions listed on coding sheets, are exempt.

No. 30 **MERTZ v. STATE TAX COMMISSION**

**89 A.D.2d 396, 456 N.Y.S.2d 501 (A.D. 1982)**

**SUBJECT:** Sales and use taxability of the sale of computer tapes.

**ISSUE:** Are transactions involving the one-time use of mailing lists in the form of magnetic computer tapes taxable as sales of information in New York State?

**FACTS:** Petitioners are the general partners of Publishers Clearing House, a New York limited partnership, engaged in the business of selling magazine subscriptions by direct mail solicitation throughout the United States and Canada. To facilitate this direct mail marketing, mailing lists, in the form of magnetic computer tapes, are obtained from companies that generate lists of names as an incident of their business, and from companies that are engaged in the business of compiling mailing lists from public records. The mailing lists are obtained on the condition that they may be used only in connection with a single mailing, after which they are returned to the owner. The partnership employed L. E. Turner & Company, a New York corporation, as its exclusive broker to obtain mailing lists. Included in the purchase price paid to the broker was a 25 percent markup as the broker's fee.

The New York State Sales Tax Bureau issued a notice of determination and demand for the payment of sales and use taxes due for the period September 1, 1970 to August 31, 1973, based upon its finding that the purchase price paid by the partnership for the mailing lists, including the broker's fees, was subject to sales and use tax (Tax Law, art. 11). Following a formal hearing held at petitioners' request, the State Tax Commission concluded that the entire purchase price of the mailing lists, including the broker's fees, was taxable.

Relying upon Matter of Alan Drey Co. v. State Tax Commission, 67 A.D.2d 1055, 413 N.Y.S.2d 516, motion for leave to appeal denied, 47 N.Y.2d 708, 418 N.Y.S.2d 1024, 392 N.E.2d 887, (N.Y. App. Div. 1979), the Tax Commission ruled that the mailing list transactions constituted both the sale of tangible personal property, taxable pursuant to section 1105 (subd. (a)) of the Tax Law, and the sale of information, taxable pursuant to section 1105 (subd. (c), para. (1)) of the Tax Law.

Petitioners contended that:

> (1) Taxing their purchase of mailing lists while excluding such advertising media as billboard space, radio broadcast time and newspaper advertising space, amounts to a denial of equal protection;
>
> (2) Pursuant to section 1119, subd.(a), para. (4) of the Tax Law, the purchase price of the mailing lists should be taxed only to the extent of the percentage of New York names and addresses on the lists; and
>
> (3) That portion of the purchase price paid by the partnership which represents the broker's fees of L. E. Turner & Company must be excluded from taxable receipts.

**HOLDING:** (1) transactions involving the one-time use of mailing lists in the form of magnetic computer tapes were taxable as sales of information, however (2) broker's fees paid to persons for obtaining the tapes were excludable from taxable receipts.

The Commission misconstrued the holding in Alan Drey. There the mailing list transactions fell into two categories: those in which the lists were transmitted via magnetic computer tape, and those in which the lists were transmitted on gummed labels. As to the transactions in the first category, the purchasers were required to process the tapes in order to generate the labels or inserts necessary for the mailings, while those

who purchased the lists on gummed labels simply attached the labels to the mailings. The transactions involving the gummed labels clearly constituted taxable sales of tangible personal property since the gummed labels themselves, rather than just the data contained thereon, were directly used in the mailings.

The computer tapes, however, were not directly used in the mailings. Instead, the data on the tapes was read and only that data was used in the mailings. The tapes, which were the only tangible personal property involved, were merely the medium by which the information that was the essence of the transaction was transmitted. The tapes served no other function in the transactions and, therefore, there was no sale of tangible personal property. Thus, the Mertz court concluded that its decision in Alan Drey should be construed as holding that the transactions involving computer tapes constituted sales of information, taxable pursuant to section 1105, subd. (c), para. (1) of the Tax Law, while those involving gummed labels constituted sales of tangible personal property, taxable pursuant to section 1105, subd. (a) of the Tax Law. While the distinction was not important in Alan Drey, since the main issue was simply whether the transactions were taxable sales, the distinction is important here, since other issues are raised.

All of the transactions at issue here involved magnetic computer tapes and, as discussed above, Alan Drey compels the conclusion that the transactions constituted taxable sales of information. Petitioners' arguments to the contrary were, for the most part, considered and rejected in Alan Drey. Their contention here, that they purchased mere access to an audience rather than information, is not supported by the record. The evidence establishes that in addition to the mailing lists, the seller provided information about the make-up of the lists, which was very important to petitioners in employing their direct marketing techniques.

The Court disagreed with Petitioner's contention that taxing their purchase of mailing lists while excluding such advertising media as billboard space, radio broadcast time and newspaper advertising space, amounts to a denial of equal protection. Since the mailing list data and the information about the make-up of the lists were processed and employed in the development of direct marketing techniques through personalized mail solicitation, there exists a rational basis for distinguishing petitioners from purchasers of traditional advertising media. Petitioners failed to carry their heavy burden of showing that the different treatment constitutes invidious discrimination (see Matter of Catapano Co. v. New York City Finance Administration, 40 N.Y.2d 1074, 392 N.Y.S.2d 255, 360 N.E.2d 934).

The Court also rejected Petitioner's contention that pursuant to section 1119, subd. (a), para. (4) of the Tax Law, the purchase price of the mailing lists should be taxed only to the extent of the percentage of New York names and addresses on the lists. Section 1119, subd. (a), para. (4), however, applies only to sales of tangible personal property, purchased for other than resale, which is subject to certain limited uses in New York and then is shipped out of the State for use outside of New York. The transactions at issue here involved the sale of information, not tangible personal property, and thus section 1119, subd. (a), para. (4), is inapplicable. Nor is section 1115, subd. (d) of the Tax Law of any avail to petitioners since no tangible personal property on which the services were performed was delivered to the purchaser (petitioners' partnership) outside the State, as required by that exemption.

Petitioners' final argument, however, had merit. Section 1105, subd. (c), para. (1) specifically excludes from taxation receipts from the sale of the "services of advertising or other agents, or other persons acting in a representative capacity * * *." This exclusion is applicable only to sales of information, such as the transactions at issue here. The record establishes that despite the common ownership of L. E. Turner & Company and petitioners' partnership, L. E. Turner & Company

acted solely in a representative capacity, as the partnership's exclusive broker in obtaining the mailing lists. Accordingly, that portion of the purchase price paid by the partnership which represents the broker's fees of L. E. Turner & Company must be excluded from taxable receipts (Tax Law, Section 1105, subd. (c), para. (a)), and the tax due must be recomputed.

**NOTE:** Also see Spencer Gifts, Inc. v. Director, Division of Taxation, 182 N.J. Super. 179, 440A.2d 104 (N.J. Tax Ct. 1981); Fingerhut Products Company v. Commissioner of Revenue, 258 N.W.2d 606 (Minn. 1977); Alan Drey Co., Inc. v. State Tax Commission, 67 A.D.2d 1055, 413 N.Y.S.2d 516, 47 N.Y.2d 708, 418 N.Y.S.2d 1024, 392 N.E.2d 887 (N.Y. App. Div. 1979).

No. 31 **MIAMI CITIZENS NATIONAL BANK AND TRUST COMPANY v. LINDLEY**

**50 Ohio St.2d 249, 364 N.E.2d 25 (1977)**

**SUBJECT:** Sales taxability of a transaction involving both tangible personal property and personal services.

**ISSUE:** Whether providing detailed reports in computer printout from which reveal considerable information for use in making informed management decisions, constitutes the sale of tangible personal property pursuant to the Ohio sales tax statute.

**FACTS:** The bank installed a data processing system in 1967 for the purpose of doing its own computer work. Eventually, it began doing data processing for other banks and provided those banks with various programs.

Many of Miami Citizens' programs were provided to the correspondent banks on a daily basis. Each program customarily consisted of a series of "reports" which reveal considerable information for use by the correspondent bank in making informed management decisions for future operations.

The customer bank paid a set monthly fee per account, depending upon the type of account; e.g., saving accounts are 15 cents per account per month. Miami Citizens also billed separately for changes requested in a particular customer's program. The sales tax was assessed only on charges for "computer print-outs," and not for programming time.

**HOLDING:** For Lindley. Where a bank uses its management to analyze the business operations of its client correspondent banks and devises programs which organize information taken from clients' records and provide the client with the organized information in computer print-out report forms, which reports are necessary to make informed management, operational, auditing, marketing and other business decisions, the true object of the transactions as shown by the record is the receipt of the printed form which contains the computer-organized data and, therefore, such transactions constitute sales of tangible personal property pursuant to R.C. 5739.01(B).

In support of its position, the Court cited Accountants' Computer Services v. Kosydar, 35 Ohio St.2d 120, 298 N.E.2d 519 (1973); Citizens Financial Corp. v. Kosydar, 43 Ohio St.2d 148, 331 N.E.2d 435 (1975); Federated Department Stores v. Kosydar, 45 Ohio St.2d 1, 340 N.E.2d 840(1976); and Lindner Brothers v. Kosydar, 46 Ohio St.2d 162, 346 N.E.2d 690 (1976).

No. 32 **MICHAEL TOOD COMPANY v. COUNTY OF LOS ANGELES**

**57 Cal.2d 684, 21 Cal. Rptr. 604, 371 P.2d 340 (1962)**

**SUBJECT:** Motion picture film negatives as tangible personal property subject to personal property tax.

**ISSUE:** Can a tangible personal property tax be assessed on the market value of a film negative, where nearly the entire market value of the film negative is the result of intangible copyrights?

**FACTS:** The County of Los Angeles (COLA) assessed an ad valorem personal property tax against the Michael Todd Company (TODD) on the film negatives of a copyrighted motion picture entitled "Around the World in Eighty Days." A tax of $105,064.46 was levied, based on an estimated cash value of $1,526,900. It was conceded by COLA that, without copyright protection, the negatives would have a salvage value of $1,000. In a prior case (Roehm v. County of Orange, 32 Cal. 2d 280, 196 P.2d 550 (1948)), the California court determined that copyrights are not subject to the personal property tax.

TODD contended that the tax should have been assessed on the $1,000 salvage value, since the market value was almost entirely attributable to the copyright protection. By allowing COLA to assess the tax based on the market value of the negatives, the Court would be allowing COLA to do indirectly what it could not legally do directly, namely, to assess a tangible personal property tax on intangible copyrights.

In the Roehm case, the Court also stated that:

> "Intangible values...that cannot be separately taxed as property may be reflected in the valuation of taxable property. Thus, in determining the value of property, assessing authorities may take into consideration earnings derived therefrom, which may depend upon the possession of intangible rights and privileges that are not themselves regarded as a separate class of taxable property."

**HOLDING:** For COLA. The Court cited six cases where the propriety of including nontaxable intangible values in the valuation of otherwise taxable property had been examined. It also quoted a previously decided case (De Luz Homes, Inc. v. County of San Diego, 45 Cal.2d 546, 563-564, 290 P.2d 544 (1955)), where the Court stated that:

"Assessors generally estimated value by analyzing market data on sales of similar property, replacement costs, and income from the property..., and since no one of these methods alone can be used to estimate the value of all property, the assessor, subject to requirements of fairness and uniformity, may exercise his discretion in using one or more of them."

The Court held (371 P.2d 340 at 347) that "tested by this rule, the method of valuation here employed by the Los Angeles County Assessor was proper."

No. 33
**QUOTRON SYSTEMS, INC. v. COMPTROLLER OF THE TREASURY**

**287 Md. 178, 411 A.2d 439 (1980)**

**SUBJECT:** Tangibility of software for use tax purposes when it is bundled with hardware.

**ISSUE:** Whether a company which provides information services, and which makes available to its subscribers computer hardware upon which to receive those services, is subject to a Maryland use tax on that part of its monthly charges which is attributable to the use of that hardware.

**FACTS:** Quotron Systems, Inc. (Quotron), provides to its subscribers a variety of financial information services, including displays of the New York and American stock exchange tickers, prices and sales of selected securities, and headlines or news stories from various wire services. It sends this information over leased telephone and telegraph lines from its computer in New York. Subscribers receive the information on hardware consisting of a computer, keyboards and display screens which Quotron provides to its subscribers. The cost of the hardware is approximately 20 percent of the costs incurred by Quotron in providing the information services. In Maryland, a subscriber cannot receive Quotron's financial information services

without utilizing Quotron's hardware, nor can it utilize Quotron's hardware without subscribing to the information services. While it is possible for a subscriber which has been provided with Quotron's hardware to utilize that hardware to "access" its own data base, there is no evidence to show that any Maryland subscriber has so utilized Quotron's hardware.

All of the hardware provided is owned installed, maintained, repaired, relocated and insured by Quotron. Although Quotron installs the hardware at locations designated by the subscriber, the computer is kept locked, usually in a locked room, and the subscriber is not permitted any access to it.

The comptroller contended that Quotron provides both a service and hardware. He maintains that when Quotron places the hardware in the subscribers' offices, it has either transferred possession of or leased tangible personal property to its subscribers, and is therefore subject to a use tax on the value of that property. He maintains that the value of the hardware consists of all of the monthly charges other than those for optional information services.

Quotron, however, contended that it provides only information services. It pointed out that it is necessary to place its hardware in its subscribers' offices in order to provide those services. It insisted that the provision of the hardware is necessary yet nevertheless incidental to the provision of the services and, therefore, that Quotron itself, and not the subscribers, is using the hardware. It concluded that under these circumstances, no part of its monthly charges to subcribers was taxable, but rather that it, not the subscribers, must pay a use tax on the cost of the hardware.

**HOLDING:** Quotron was not subject to a Maryland use tax on that part of its monthly charges which was attributable to use of the hardware where the hardware had no utility in and of itself to subscribers. The court's reasoning was based on Comptroller of the Treasury v. Chesapeake and Potomac Telephone Company, 241 Md. 345, 216 A.2d 717 (1966), where

the Court considered the question whether the C & P Telephone Company, which furnished both teletypewriter equipment and services to its subscribers, was providing a telecommunication service or renting tangible personal property. There, the Comptroller claimed that the monthly charge collected by C & P represented rentals for the lease of the equipment which was tangible personal property. C & P contended that it provided only communication services.

The record showed that the sole function of the equipment was to transmit and receive communications, and that it had no utility in and of itself. The equipment was located on the premises of the subscribers who provided operators to send and receive messages by depressing the appropriate keys on the equipment. Although the equipment could be used at the subscribers' discretion, it could be used only to send and receive messages between specified locations. C & P could not intentionally interrupt the transmission of a message.

Based upon these facts, this Court found that C & P retained control of the equipment, and that the dominant purpose of the contract was to provide a service. It determined, therefore, that C & P provided a service and not a mere rental of equipment, and held that the charges received from the rendition of such communication services were not taxable.

In reaching this conclusion, the Court first determined that, although C & P provided both teletypewriter equipment and services, it was necessary to characterize those activities as a single, overall function which was either a rental of equipment or the provision of services. Having characterized the overall function as a service, the Court next considered whether that function was subject to a sales tax. Thus this case establishes that in order to determine whether a sales tax can be imposed when a company provides both a service and related equipment, a two-step analysis must be employed. First, the overall function must be characterized by the examination of various factors as either a rental or transfer of possession, or a service. Secondly, it must be

determined whether that function is subject to a sales tax. In order jurisdictions in which the same or similar questions have been considered, the same analysis has been employed. See Askew v. Bell, 248 So.2d 501, (Fla. Dist. Ct. App. 1971); Spagat v. Mahin, 50 Ill.2d 183, 277 N.E.2d 834, (1971); J. H. Walters & Co. v. Department of Revenue, 44 Ill.2d 95, 254 N.E.2d 485, (1969); Community Telecasting Serv. v. Johnson, 220 A.2d 500, (Me. 1966); Dun & Bradstreet v. City of New York, 276 N.Y. 198, 11 N.E.2d 728, (1937). See also Undercofler v. Grantham Transfer Co., 114 Ga. App. 868, 152 S.E.2d 900, (1966); Machinery Moving Inc. v. Porterfield, 26 Ohio St.2d 99, 269 N.E.2d 418, (1971).

In C & P the Court expressly relied upon two standards, the control of the equipment and the dominant purpose of the contract, in characterizing C & P's single, overall function as a service. The Court, however, also took into account the relationship between the equipment and the service when it found that the sole function of the equipment was to transmit and receive communications and that it had no utility in and of itself. Courts in other jurisdictions which similarly have examined the relationship between equipment and services in characterizing an overall function, have applied a third standard. J. H. Walters & Co., 44 Ill.2d at 104-05, 254 N.E.2d at 491; Community Telecasting Serv., 220 A.2d at 503; Dun & Bradstreet, 276 N.Y. at 205, 11 N.E.2d at 731. This standard was expressed by the Supreme Court of Illinois in Snite v. Department of Revenue, 398 Ill. 41, 46, 74 N.E.2d 877, 879-80 (1947), as follows:

> "If the article sold has no value to the purchaser except as a result of services rendered by the vendor and the transfer of the article to the purchaser is an actual and necessary part of the service rendered, then the vendor is engaged in the business of rendering service and not in the business of selling at retail. If the article sold is the substance of the transaction and

the service rendered is merely incidental to and an inseparable part of the transfer to the purchaser of the article sold, then the vendor is engaged in the business of selling at retail, and the tax which he pays for the privilege of engaging in such business is measured by the price which the purchaser pays for the article and the service incident thereto."

No. 34 **SIMPLICITY PATTERN COMPANY, INC.**
**v.**
**STATE BOARD OF EQUALIZATION**

**101 Cal. App.3d 184, 161 Cal. Rptr. 558 (1980)**

**SUBJECT:** Sales taxation of master negatives and originals of written instruction guides.

**ISSUE:** Are master negatives and originals of written instruction guides tangible personal property subject to the California sales tax?

**FACTS:** Prior to January, 1971, Simplicity was engaged in the business of producing and marketing audio-visual educational materials used in training nurses and nurses aides. The product, which Simplicity marketed primarily to hospitals and schools, was a "package" comprised of a film strip, phonograph record and instructor's guide.

In that year, Simplicity transferred to Medcom all of the assets of that part of its operation devoted to the above described business. In return, Simplicity received a substantial but not a controlling amount of Medcom stock. The transaction qualified as a tax-free reorganization under both federal and state income tax laws (Internal Revenue Code, Sections 354 and 368(a)(1)(C), and Revenue and Taxation Code Sections 17432 and 17461). Among the assets transferred were completed master negatives of the various "packages" from which copies were produced for retail sale, and incomplete master negatives in various stages

of completion. These items were carried on the books of Simplicity as inventory assets valued according to development and production costs incurred in the making of the master negatives.

The Board determined that the transfer of these assets was a retail sale subject to sales tax. Simplicity contended that the real value of the master negatives was in their intangible elements, i.e., the literary content, and thus not subject to sales tax.

**HOLDING:** For Simplicity. The Court cited the rule in Albers v. State Board of Equalization, 237 Cal. App.2d 494, 47 Cal. Rptr. 69 (1965), which recognized that since every transfer of property includes both tangible and intangible components, the taxability of a particular transfer depends upon the "true object of the transaction." Simplicity contended that the "true object" was the literary or intangible content and the right to retail copies of that material. The Board's position was one of equating the master negatives with tools and dies which are in turn used to produce other tangible items. In short, the Board argued that the "true object" of the transaction was to obtain the master negatives for their own sake and denied that their major value was in their intangible ingredients.

The Court said that:

> "It seems evident to us that the master negatives and the original of the instructor's guides were products of the expertise of the collective mind of the Simplicity production staff and that their primary value was in the intangible content rather than the tangible items of the film, plastic discs and paper on which that content was recorded. The marketable value of copies of these master negatives lies in their content." (161 Cal. Rptr. at 561).

No. 35 SOUTHERN BELL TELEPHONE AND TELEGRAPH COMPANY v. DEPARTMENT OF REVENUE

366 So.2d 30 (Fla. Dist. Ct. App. 1978)

**SUBJECT:** Sales taxability of a sale involving both tangible personal property and personal services.

**ISSUE:** Does the sale of artwork that ultimately appears in the telephone book yellow pages constitute the sale of tangible personal property subject to the Florida sales tax?

**FACTS:** The Department of Revenue assessed a tax, penalty and interest against Southern Bell based on alleged purchases by Southern Bell of tangible personal property on which no sales tax had been collected by the vendors. The sales tax was assessed on transactions between Southern Bell and artists who produced artwork used in advertisements appearing in the yellow pages of Southern Bell telephone books. Southern Bell contended that its transactions with artists who created speculative art and finished art were personal service transactions which involved sales as inconsequential elements for which no separate charges were made and thus were exempt from sales tax. Speculative art refers to rough drawings created by artists at the specific request of the yellow pages salesperson. Finished art refers to designs which are actually photographed for use in particular yellow pages advertisements. The artists who prepare either speculative art or finished art furnish all the materials used in the creation of the design and the relative value of the materials used ranges from 1 percent to 6 percent of the amount paid by Southern Bell to the artist.

Southern Bell further contended that theoretically the artists could perform the services for which they are engaged without tranferring any property to Southern Bell. In the case of speculative art, the artist could accompany the yellow pages salesperson on a visit to a prospective advertiser or

the prospective advertiser could accompany the salesperson to the artist's studio. In the case of finished art, Southern Bell could photograph the finished art at the studio of the artist.

The Department of Revenue contended that Southern Bell purchased title and exclusive posession to the artwork, since that is the only way Southern Bell could obtain the benefit of the product. Furthermore, the transfer of tangible personal property was not an inconsequential element of the transaction, and the personal service exemption did not apply in this case.

**HOLDING:** For Southern Bell. The Court agreed with Southern Bell's contention that these transactions fit within the statutory exemption, which includes "...professional...or personal service transactions which involve sales as inconsequential elements for which no separate charges are made." (F.S. 212.08(7)(e)).

The Court reached its decision after considering the following factors:

> (1) Whether or not the property to be transferred as a result of the transaction is already in existence or whether it is produced in the course of the services rendered;
>
> (2) The value of the individual effort involved in the transaction as compared to the value of the property transferred;
>
> (3) Whether or not it is essential to the transaction that the specific tangible personal property is created.

The Court determined that Southern Bell met all three of the above tests. The Court cited two other cases in further support of its position. In Askew v. Bell, 248 So.2d 501 (Fla. 1st Dist. Ct. App. 1971) the court held that a court reporter, who for a fee records a judicial or administrative proceeding, or takes down and transcribes testimony, is engaged in rendering a service and the transcript which he furnishes to

the persons who employ him is a mere incident of that service. The Askew court held that such a transaction would be subject to sales tax only when transcripts are sold to third persons who are not parties to the proceeding for which the court reporter was engaged.

In Nova Computing Services v. Askew, D.O.A., Case No. 76-1475: March 1, 1977, the Department of Revenue enacted a rule construing computer software (punched cards, paper tape and typed sheets) to be tangible personal property and subject to the sales tax. Nova filed a petition challenging the validity of the rule. The Administrative Hearing Officer in that case found that when computer software is sold it is the computer information which is transferred, and that the magnetic tape or punch cards which contain the information are only the means or method of transmitting it from the originator to the user. It was further determined that the tangible property (i.e., punch cards) involved in the process was an inconsequential element for which no separate charges were made, the consequential element being intangible property (computer information) which was not subject to the sales tax on tangible personal property. The conclusion was that Nova and other similar corporations were selling services to their customers which were exempt from the sales tax.

No. 36

**SPENCER GIFTS, INC. v. DIRECTOR, DIVISION OF TAXATION**

**182 N.J. Super. 179, 440A.2d 104 (N.J. Tax Ct. 1981)**

**SUBJECT:** Software and sales and use taxation.

**ISSUES:** (1) Does the leasing of computer information constitute the leasing of tangible personal property subject to either the sales or use tax?

(2) Is the rental of computer mailing lists subject to sales tax as a taxable advertising service?

**FACTS:** Spencer was engaged in the business of selling merchandise by mail order. In connection with that business it leases and pays for mailing list information which is received in the form of magnetic tapes.

Spencer leases and pays for mailing list information. The magnetic tapes from which this information is derived by Spencer's computer are the means by which the desired information is transmitted from the vendor to Spencer, the purchaser. The information on the tapes is extracted by Spencer's computer in a matter of minutes and stored in the memory units of that computer. The tapes are then promptly returned, unchanged, to the lessor. The acquired information is used shortly thereafter by Spencer for addressing and for personalizing mailings. In most cases, no further use can be made of the mailing list data without additional payments to the vendor. Spencer pays no specific charge for or deposit on the tapes themselves. The rental charge bears no relation to the cost of the tape or the amount of time the tape is in Spencer's possession. The rental charges are based on the quantity and quality of the information contained on the tapes, not on the physical attributes of the tape. In purchasing mailing list information Spencer is solely concerned with the quality and quantity of the information it is acquiring, or, in the parlance of the industry, the "pull" of a particular list, i.e., the number and nature of customers a particular list will attract. For example, Spencer may seek lists containing the names of other companies' customers, lists of addresses from certain zip code areas, lists of persons who have been solicited but who have not purchased items from another vendor, lists of subscribers to certain publications, or lists of persons in certain age groups; and it balances the expected yield of a list against its cost. Spencer is not concerned about whose brand of magnetic tape will be sent, how many reels of tape will be sent or about other physical characteristics of the tapes, and those physical characteristics do not determine cost.

The fees paid by Spencer "for the right to acquire information from magnetic tapes" ranged from $30 to $35 per thousand names. Such information is treated by plaintiff's lessors "as valuable and confidential business information." The information purchased is on magnetic tapes each of which contain anywhere from 5,000 to 500,000 names and addresses. The cost of leasing one tape could therefore range from between $150 to $175 for a 5,000-name tape to between $15,000 and $17,500 for a 500,000-name tape. The approximate cost of a reel of blank magnetic tape is $10.50 for a 2,400-foot reel.

The issue before the court is whether the leasing of computer information is the leasing of tangible personal property subject to tax under either N.J.S.A. 54:32B-3 (sales tax) or N.J.S.A. 54:32B-6 (use tax), or, if intangible personal property and not so subject to tax, whether such leasing is taxable as advertising services under N.J.S.A. 54:32B-3(b)(5). The act taxes every retail sale of tangible personal property unless the sale is specifically exempted from tax, but only specified services are taxed in the act.

**HOLDING:** For Spencer. The Court held that the: (1) leasing of computer information is not the leasing of tangible personal property and is not subject to either sales or use taxation, and (2) the rental of computer mailing lists is not subject to sales tax as a taxable advertising service.

The Director's contention that Alan Drey Co., Inc. v. State Tax Commission, 67 A.D. 1055, 413 N.Y.S.2d 516 (N.Y. App. Div. 1979), controls the disposition of this case was rejected by the Court because New Jersey has no counterpart to the New York statute that taxes information. In support of its position that the leasing of computer information is not taxable, Spencer cited District of Columbia v. Universal Computer Associates, Inc., 465 F.2d 615 (D.C. Cir. 1972); First National Bank of Fort Worth v. Bullock, 584 S.W.2d 548 (Tex. Civ. App. 1979); Alabama v. Central Computer Services, Inc., 349 So.2d 1160 (Ala. 1977); and First National Bank of Springfield v. Revenue Department, 85 Ill.2d 84, 51 Ill. Dec. 667, 421 N.E.2d 175 (Ill. 1981).

In Fingerhut Products Co. v. Revenue Commissioner, 258 N.W.2d 606 (Minn. Sup. Ct. 1977), the taxpayer, a direct mail merchandiser of a wide range of consumer products, obtained names and addresses of prospective customers from mailing-list brokers. The lists reflected a broad spectrum of demographic data, such as income, family size, location and history of mail order purchasing. The names and addresses supplied by the broker were intended for one-time use only. The applicable Minnesota statute imposed a use tax "for the privilege of using, storing or consuming in Minnesota tangible personal property." Minn. Stat. 297 A.14. The issue before the court was whether the mailing lists were "tangible personal property" within the meaning of the statute. The information came to the taxpayer from the broker in the form of Cheshire tapes, gummed labels, heat transfers but that the typed lists themselves were not taxable. In reaching its conclusions the court said that in the case of the tapes, labels and heat transfers, the physical manifestation of the property is itself used. However, in the case of the mailing lists, the court said it was dealing with incorporeal information and that the use of the tangible medium of typed mailing lists was merely incidental to the use of that information. The court referred to Dun & Bradstreet v. New York City, 276 N.Y. 198, 11 N.E.2d 728 (Ct. App. 1927).

The Court also referred to Williams & Lee Scouting Service, Inc. v. Calvert, 452 S.W.2d 789 (Tex. Civ. App. 1970); Janesville Data Center, Inc. v. Wisconsin Revenue Department, 84 Wis.2d 341, 267 N.W.2d 656 (Wis. 1978); Bullock v. Statistical Tabulating Corp., 549 S.W.2d 166 (Tex. Civ. App. 1977); Accountants Computer Services, Inc. v. Kosydar, 35 Ohio St.2d 120, 298 N.E.2d 519 (Ohio 1973); Andrew Jergens Co. v. Kosydar, 35 Ohio St.2d 120, 298 N.E.2d 519 (Ohio 1973); Avco Broadcasting Corp. v. Lindley, 53 Ohio St.2d 64, 372 N.E.2d 350 (Ohio 1978); and Credit Bureau of Miami County, Inc. v. Collins, 50 Ohio St.2d 270, 364 N.E.2d 27 (Ohio 1977), in support of its position.

No. 37

**STATE OF ALABAMA v. CENTRAL COMPUTER SERVICES, INC.**

**349 So.2d 1160 (1977)**

**SUBJECT:** Tangibility of computer software for Alabama use tax purposes.

**ISSUE:** Is computer software tangible property subject to the Alabama use tax?

**FACTS:** Central Computer Services, Inc., paid $236,400 to University Computing Company of Texas for a ninety-nine year license for the use of eight computer programs. This software was used to program Central Computer Services (CCS) computer which provides data processing services for banks affiliated with Central Bancshares of the South, Inc.

Upon receipt of the software, CCS extracted the information contained on the magnetic tapes and punched cards, and transferred the programs to magnetic discs owned by CCS. The tapes were then returned to University Computing Company and the cards were thrown away. The Alabama State Department of Revenue assessed a use tax of $13,519.91 against CCS for its purchase of the eight computer programs. CCS alleged the programs were intangible property and therefore not subject to the use tax.

**HOLDING:** For CCS. What was purchased by CCS was the information or knowledge which went into the development of the eight programs and not the magnetic tapes and punched cards themselves. The magnetic tapes and punched cards were merely the means by which this information or knowledge was transferred.

The State contended that the magnetic tapes and punched cards are a necessary, integral part of the computer program and that because these items are tangible, there was a purchase of taxable tangible personal property by CCS.

In its argument, the State cited Boswell v. Paramount Television Sales, Inc., 291 Ala. 490, 282 So.2d 892 (1973). In that case, the court held that the leasing of movie films and tapes by Paramount to television stations in Alabama involved the leasing of tangible personal property rather than an intangible right to publish as Paramount argued.

The Court in the present case distinguished the magnetic tapes and punched cards from the movie films. In Boswell, the Court noted that the right to publish or broadcast the motion picture was physically inseparable from the movie film itself. The physical presence of the movie film is essential to broadcasting the intangible artistic efforts of the actors.

However, in the present case, the physical presence of magnetic tapes and punched cards is not essential to the transmittal of the desired information from its creator at University Computing Company to CCS. This information can also be telephoned to the computer or brought into Alabama in the mind of an employee of University Computing Company.

In its summary, the Court said that:

> "...we find in the present case that there is an incidental physical commingling of the intangible information sought by Central Computer Services and the tangible magnetic tapes and punched cards themselves. We therefore hold that the essence of this transaction was the purchase of nontaxable intangible information." (349 So.2d at 1162).

This case was a case of first impression in Alabama (meaning no case having a similar fact pattern had previously been tried in Alabama). The Court's decision was influenced by Commerce Union Bank v. Tidwell, 538 S.W.2d 405 (Tenn. 1976) and District of Columbia v. Universal Computer Associates, Inc., 151 U.S. App. D.C. 30, 465 F.2d 615 (1972). Commerce Union Bank v. Tidwell held that computer software is intangible and therefore not subject to the Tennessee sales tax.

District of Columbia v. Universal Computer Associates, Inc. held that computer software was not subject to the District of Columbia personal property tax on tangible property. In the District of Columbia case, the Court described the nature of software as follows:

> "...It is the information derived by the machine from the cards which stays in the computer, and which is employed repeatedly by the machine when it is used by Universal. What rests in the machine, then, is an intangible--'knowledge'--which can hardly be thought to be subject to a personal property tax. The only viable evidence of that knowledge, the punched pasteboard, could be stacked in a warehouse, returned to IBM, or destroyed, without interfering with the efficiency of the computer machine to perform its designed function." (151 U.S. App. D.C. at 33, 465 F.2d at 618).

**NOTE:** Rule C28-001 exempts both prewritten and custom programs from sales and use taxation.

No. 38 **TEXAS INSTRUMENTS, INC. v. UNITED STATES**

**551 F.2d 599, 39 AFTR2d 77-1383 (5th Cir. 1977)**

**SUBJECT:** Tangibility of computer tapes for investment tax credit and depreciation purposes.

**ISSUE:** Are computer tapes, including the value of the data contained therein, considered tangible property for investment tax credit and depreciation purposes?

**FACTS:** A taxpayer is entitled to claim an investment tax credit equal to a specified percent of the basis of "Section 38 property." Under Section 48(a)(1) of the Internal Revenue Code, "Section 38 property" is defined to include "tangible personal property."

Similarly, a taxpayer is entitled to a deduction for depreciation under the double-declining balance method if the depreciable property is "tangible personal property."

During 1968 and 1969, a subsidiary of Texas Instruments was engaged in the business of collecting, processing and selling or licensing offshore seismic information to various customers who in turn used that information to explore for oil and gas. While the information was furnished to the customer in picture form depicting the contours of the earth's different strata, the actual collection and editing process involved a complicated computer process.

Seismic data were transmitted by electronic impulses and transcribed onto magnetic computer tapes known as "field" tapes. From these field tapes a "final" or "output" tape was produced, from which the pictures were produced.

When a customer placed an order for the information, he received a copy of the original picture produced by the process, a map locating the points where the sound waves were introduced into the earth, and a report outlining the conditions under which the tests were conducted. The TI subsidiary company retained all field and output tapes as well as the original analog film. Information furnished on the picture to customers was licensed on a non-exclusive basis. Customers were generally not permitted to make the data available to others.

Costs incurred in 1968 and 1969 were in excess of $3,000,000, and were deducted by the taxpayer as ordinary and necessary business expenses. The Internal Revenue Service disallowed these deductions and determined that the costs should be capitalized and amortized over a seven year period. TI did not dispute this determination but insisted that it was entitled to take an investment tax credit and use the double-declining balance method of depreciation on the total capitalized costs of the field tapes, output tapes and analog film. The IRS contended that these tax

benefits are applicable only to the cost of the raw tape and film itself not to the full cost of producing the tapes and film.

At the district court level (407 F.Supp. 1326), the government's position was sustained on two grounds. First, when a taxpayer places into service tangible personal property that he produced himself, the investment tax credit may be taken only for the costs of the tangible inputs used. Labor and other intangible costs must be excluded. Since TI failed to allocate its costs between tangible and intangible inputs, no investment tax credit may be claimed. Second, the costs incurred in producing and processing the seismic data on the tapes and film did not constitute making an investment in tangible property, but rather intangible information.

On appeal, the government conceded that the district court's analysis on the first ground was erroneous, but sought to sustain the district court's judgment on the second ground, arguing that if the capital asset in which the taxpayer's costs are invested is essentially intangible, then all costs of acquiring or producing that asset constitute the basis of an intangible asset and the investment tax credit and the double declining method of depreciation are unavailable.

**HOLDING:** For Texas Instruments. Treasury Regulation Section 1.48-1(F) states that:

> "Intangible property, such as patents, copyrights, and subscription lists, does not qualify as Section 38 property. The cost of intangible property, in the case of a patent or copyright, includes all costs of purchasing or producing the item patented or copyrighted. Thus, in the case of a motion picture or television film or tape, the cost of the intangible property includes manuscript and screen-play costs, the cost of wardrobe and set design, the salaries of cameramen, actors, directors, etc., and all other costs properly includible in the basis of such film or tape."

Treasury regulations are ordinarily entitled to considerable weight in construing the statutory language. However, the Court pointed out that the Ninth Circuit had previously ruled the regulation to be invalid as applied to film (Walt Disney Productions v. United States, 327 F.Supp. 189 (C.D. Cal. 1971); aff'd. on appeal, 480 F.2d 66 (9th Cir. 1973), cert. denied, 415 U.S. 934, 94 S.Ct. 1451, 39 L.Ed.2d 493 (1974)), and the present Court stated its agreement with the Ninth Circuit's decision. When Congress reenacted the investment tax credit in 1971, it expressly indicated its agreement with the Disney holding that motion pictures and TV films are tangible personal property eligible for the investment tax credit. (S. Rep. No. 92-437, 92d Cong., 1st Sess. 34, 1971 U.S. Code Cong. and Adm. News, pp. 1918, 1941 (1971)). Furthermore, the Tax Reform Act of 1976 added Section 48(k) to the Internal Revenue Code, and treats motion picture and TV films as tangible personal property eligible for the investment tax credit (see also Treasury Regulation Section 7.48-1(a)).

In the present case the Court held that the property in question is tangible personal property and therefore qualifies for the investment tax credit and for the use of the double declining balance method of depreciation. For investment tax credit and depreciation purposes the basis of tangible tapes and films on which the taxpayer recorded seismic data includes the cost of collecting the data and recording it on the raw tapes and film.

No. 39 **TRIANGLE UNDERWRITERS, INC. v. HONEYWELL, INC.**

**475 F.Supp. 765 (E.D.N.Y. 1978),**
**rev'd. on other grounds, 604 F.2d 737 (2d Cir. 1979)**

**SUBJECT:** Purchase of a "turn-key" system and the Uniform Commercial Code.

**ISSUE:** Does the purchase of a "turn-key" system constitute the sale of a service or the sale of a "good"?

FACTS: Triangle replaced its IBM system with a Honeywell system after assurances from Honeywell that their system would outperform IBM's, and that the system would be "turn-key" (the system would be pre-prepared and could virtually be plugged in and ready to function immediately).

Triangle elected to purchase rather than lease the hardware, and a contract of sale was entered into. Honeywell's compensation was limited to the purchase price of the hardware; it did not bill for services prior to, during or subsequent to installation. The agreement did not contemplate that Honeywell would run a data processing service for Triangle but rather that Honeywell would develop a completed system and deliver it "turn-key" to Triangle to operate. After the installation and training period, Honeywell personnel were to withdraw, and Honeywell's major remaining obligation was to be maintenance.

The "turn-key" system consisted of both hardware and software. Honeywell supplied both standard programming aids of general application to its computer and "custom application software" specifically designed for a customer's individual needs.

The system never functioned properly, and Triangle eventually went out of business, allegedly because of the faulty system purchased from Honeywell. Triangle sued for fraud, breach of contract and negligence. Honeywell asserted that a cause of action for breach of contract is barred by the Uniform Commercial Code, which has a four year statute of limitations for the sale of goods. Triangle contended that the transaction in question constituted the sale of a service, and that a six year statute should apply.

HOLDING: For Honeywell. The facts in this case indicate that the contract was for the sale of goods and not services, and the Uniform Commercial Code's four year statute of limitations for breach of contract applies, therefore barring Triangle's claim.

The Court based its reasoning on North American Leisure Corp. v. A & B Duplicators, Ltd., 468 F.2d 695, 697 (2d Cir. 1972), which held that a contract is for "service" rather than "sale" when service predominates, and the sale of items is incidental. In Triangle, the precise converse is true. Triangle bought Honeywell's equipment in the hope it would outperform IBM's equipment. The essence of the contract was for the sale of goods. While certain services by Honeywell were contemplated, the contract remains one for sale if those services were merely incidental or collateral to the sale of goods. (Dynamics Corporation of America v. International Harvester Co., 429 F.Supp. 341 (S.D.N.Y. 1977)).

Honeywell's compensation was limited to the purchase price for the hardware; it did not bill for services prior, during or subsequent to installation. These are recognized indicia of a contract for the sale of goods, and not the rendition of professional services. (Aluminum Company of America v. Electro Flo Corporation, 451 F.2d 1115, 1118 (10th Cir. 1971)).

No. 40

## ULTRONIC SYSTEMS CORP. v. BOARD OF ASSESSORS OF BOSTON

**355 Mass. 284, 244 N.E.2d 318 (1969)**

**SUBJECT:** Peripheral equipment as personal property subject to the personal property tax.

**ISSUE:** Is a computer memory drum subject to the Massachusetts personal property tax?

**FACTS:** Ultronic's memory drum was used solely to electronically receive, store, transmit, speed up, or slow down a vast supply of information sold by Ultronic through leased machinery. All the leased property would be totally inoperative without the drum, which stores information and sends it out again over telephone lines. The Massachusetts statute (General Laws, chapter 59, paragraph 5) exempts from personal property taxation all personal property owned by a corporation other than

"machinery used in the conduct of the business, which...shall not be deemed to include stock in trade or any personal property directly used...in any purchasing, selling, accounting or administrative function."

Ultronic contended that the computer memory drum, both electronically and from a business viewpoint, is an integral part of Ultronic's stock in trade, since without it the wall panels and desk units on lease would be of no use to its customers.

**HOLDING:** The drum is subject to the personal property tax. Citing Board of Assessors of City of Brockton v. Brockton Olympia Realty Co., 322 Mass. 351, 77 N.E.2d 391, the Court held that the statute does not exempt machinery principally involved in producing or processing the taxpayer's stock in trade, which in this case is information.

No. 41 **UNIVERSITY MICROFILMS v. SCIO TOWNSHIP**

**76 Mich. App. 616, 257 N.W.2d 265 (1977), leave to appeal denied, 402 Mich. 880 (1978)**

**SUBJECT:** Master film negatives as tangible personal property subject to personal property tax.

**ISSUE:** Can a tangible personal property tax be assessed on the net book value of master negative microfilms?

**FACTS:** University Microfilms (UM) is in the business of supplying copies of printed material to scholars and libraries. UM has copied rare books, early English and American books, periodicals, doctoral dissertations and other sources onto microfilm. These microfilmed copies, called master negatives, are kept in a vault. Additional copies are produced upon request from these master negatives and sold to customers in microfilm or photocopy form.

Scio Township assessed a personal property tax on the master negatives based on their net book value. UM contended that its master negatives are not subject to Michigan's personal property tax

because: (1) the master negatives are intangible property because the value of the property is in the information that is stored and not in the film itself, and (2) if the master negatives are held to be tangible personal property, they are special tools and therefore exempt from the tax.

**HOLDING:** For Scio Township. In support of its contention that the master negatives are intangible personal property, UM cited a line of Michigan cases holding real estate abstract books to be intangible (See Bay Trust Co. v. Bay City, 280 Mich. 44, 273 N.W. 437 (1937); Loomis v. City of Jackson, 130 Mich. 594, 90 N.W. 328 (1902); Perry v. Big Rapids, 67 Mich. 146, 34 N.W. 530 (1887); Dart v. Woodhouse, 40 Mich. 399 29 Am. Rep. 544 (1879)). Also cited were cases holding computer software to be intangible. (See District of Columbia v. Universal Computer Associates, Inc., 151 U.S. App. D.C. 30, 465 F.2d 615 (1972); Texas Instruments, Inc. v. United States, 407 F.Supp. 1326 (N.D. Tex 1976); Greyhound Computer Corp. v. State Department of Assessments and Taxation, 271 Md. 674, 320 A.2d 52 (1974)). UM argued that its master negatives are analogous to real estate abstract books and computer software because they are only valuable for the information they contain.

Scio Township argued that UM's supply of master negatives is in actuality a library and that libraries which exist for profit are subject to taxation. Furthermore, UM's master negatives are not abstracts or computer software, so the cases cited do not apply.

The Court distinguished the abstract and software cases from the present case on several grounds. Whereas the value of an abstract book depends on its continual updating, the value of UM's master negatives does not. In fact, the very reason that UM's material is in demand is because it is in the original and unchanged. UM has not added to the original print on paid someone with expert knowledge to systematize relevant material into a new product, as is done with computer software. The value of the information is not peculiar to UM alone, but is valuable in and of itself. It is

for these reasons that UM's master negatives were held to be tangible property. The master negatives did not qualify for exemption as special tools because they did not meet the definition of special tools.

NOTE: Compare the holding in this case with that of Michael Todd Co. v. County of Los Angeles, 57 Cal.2d 684, 21 Cal. Rptr. 604, 371 P.2d 340 (1962); Walt Disney Productions v. United States (Disney I), 327 F.Supp. 189 (C.D. Cal. 1971, aff'd. as modified, 480 F.2d 66 (9th Cir. 1973), 32 AFTR 2d 73-5094, cert. denied, 415 U.S. 934, 94 S.Ct. 1451, 39 L.Ed.2d 493 (1974); Walt Disney Productions v. United States (Disney III), 549 F.2d 576 (9th Cir. 1977) 39 AFTR2d 77-796.

No. 42

**WALT DISNEY PRODUCTIONS v. UNITED STATES (Disney I)**

**327 F.Supp. 189 (C.D. Cal. 1971),**
**aff'd. as modified,**
**480 F.2d 66 (9th Cir. 1973), 32 AFTR2d 73-5094,**
**cert. denied, 415 U.S. 934, 94 S. Ct. 1451,**
**39 L.Ed.2d 493 (1974)**

SUBJECT: Tangibility of motion picture film negatives for investment tax credit purposes.

ISSUES: (1) Are motion picture film negatives tangible personal property for federal tax purposes? (2) Do motion picture film negatives qualify for the investment tax credit?

FACTS: The district court held that the master motion picture film negatives in question, produced in 1962, and used in the film manufacturing process were tangible personal property within the meaning of the Internal Revenue Code of 1954, that they had a useful life of more than 8 years, that they were depreciable, and that they were eligible for the investment tax credit. The Commissioner contended that the negatives were not tangible personal property within the meaning of IRC Section 48(a)(1)(A) and that they did not have a useful life of eight years, and could therefore not qualify for the investment tax credit.

Film negatives are used to make prints, which are copyrighted and exhibited in theaters or on television. The negatives are not copyrighted. The Commissioner argued that all labor and production costs of the negatives be attributed to the copyrighted prints.

**HOLDING:** For Walt Disney Productions. Motion picture film negatives are tangible personal property (not withstanding Reg. 1.48-1(F), which the Court held to be invalid) and the negatives in question had a useful life sufficiently long to qualify for the investment credit. Film negatives, like production machinery, are standardized units of depreciable property which Disney uses to produce other products, the positive prints. The attribution of all the value of the film to the copyright, like the attribution of all the value of a machine used in production to a patent eventually procured on it is unwarranted.

**NOTE:** The present case (Disney I) is the first of a series of Disney cases dealing with the same subject matter. Further reference may be made to Walt Disney Productions v. United States, 74-2 USTC 9623 (C.D. Cal. 1974), appeal dismissed per stipulation, No. 74-2988 (9th Cir. Jan. 17, 1975) (Disney II); and Walt Disney Productions v. United States, 549 F.2d 576 (9th Cir. 1977), 39 AFTR2d 77-796 (Disney III). See also Texas Instruments, Inc. v. United States, 551 F.2d 599, 39 AFTR2d 77-1383 (5th Cir. 1977).

No. 43

**WALT DISNEY PRODUCTIONS v. UNITED STATES (Disney III)**

**549 F.2d 576 (9th Cir. 1977), 39 AFTR2d 77-796**

**SUBJECT:** Tangibility of motion picture film negatives for investment tax credit purposes.

**ISSUES:** (1) Are motion picture film negatives tangible personal property for federal tax purposes? (2) Do motion picture film negatives qualify for the investment tax credit? (3) If the negatives do qualify for investment tax credit, must a portion

of the credit be recaptured in years when the income derived from the positive prints is earned predominantly outside the United States, even though the negatives remain in the USA?

**FACTS:** Walt Disney Productions sued for a tax refund, claiming the investment tax credit under 26 U.S.C. Sections 38, 46-50 (1970) for the cost of fourteen film negatives produced in 1970. The district court granted the refund and the government appealed.

Disney sought the investment tax credit for the production costs of the master negative which is used to produce positive prints. In calculating the investment credit, Disney claimed all the capitalized costs necessary to produce the master negative. These costs include preparing a script from a story, building sets, hiring and rehearsing talent, and editing the original film negatives and "mixing" the audio (dialogue, music and sound effects) tapes to produce the cut picture negative and magnetic master sound tape. Disney did not claim the costs incurred in producing the completion negatives and did not claim as investment credit property the original or edited dialogue, music or sound-effect tapes, although the expense for those items was claimed in computing the production costs of the master negative.

The depreciable base included the capitalized costs of producing answer prints, including the costs of the optical sound negatives but not including the costs of the intermediate printing articles. The income-forecast method was used to depreciate each film title, a method that is generally used to depreciate intangible personal property.

On its 1970 tax return, Disney claimed an investment tax credit equal to seven percent of its alleged qualified investment in the master negatives produced during that taxable year. The Commissioner disallowed the investment tax credit on the ground that Disney's production costs were investments in intangible property, a copyright-protected motion picture. The government maintained that, while a master negative includes

tangible items such as film stock and tapes, these tangible "things" have no separate identities or depreciation bases for tax purposes apart from the photoplay and intangible rights included in the finished product. The master negatives at issue in this case are the same type of property that the Court previously characterized as qualifying for the investment tax credit in Disney I and Disney II (see previous case).

The government further argued that, since Disney treated the property in question as intangible for depreciation purposes, it must also be considered as intangible (and therefore not eligible) for investment tax credit purposes. The government also contended that even if Disney's production costs could qualify for the credit, a portion of the credit allowed for prior taxable years was subject to recapture because the motion pictures involved were exhibited predominantly outside the United States in 1970. In that year, more than 50 percent of Disney's gross receipts from exhibition of prints produced from 1962-69 master negatives came from foreign sources.

**HOLDING:** For Disney. Master negatives used in the film manufacturing process were held to be tangible property for investment tax credit purposes. The full 7 percent credit could be claimed because the negatives had a sufficiently long useful life. The fact that the motion pictures involved were exhibited outside the United States in 1970 did not subject a portion of the investment tax credit allowed for prior taxable years to recapture.

The decision reached in the present case (Disney III) is in keeping with that reached in Disney I, where an analogy was made between master negatives and a machine that stamps out patented products for sale. The stamping machine is tangible even though the product it produces is protected by an intangible copyright. The same is true of master film negatives. Legislative history (discussed in more detail in Texas Instruments, Inc. v. United States) also indicates that it was the intent of Congress that the master film negatives be treated as tangible property qualifying for the investment tax credit.

Treasury Regulation Section 1.48-1(g)(i) provides that property physically located outside the United States during more than 50 percent of the year shall be considered used predominantly outside the United States, which would make the property ineligible for the investment tax credit. However, the master negatives (upon which the investment tax credit was claimed) remained in the United States throughout 1970. Only the exhibition prints left the country, and the investment tax credit was not claimed on them. Therefore, no investment tax credit need be recaptured.

The Court also held that even though the property in question may be treated as intangible for depreciation purposes, such treatment does not preclude tangible treatment for purposes of the investment tax credit.

# APPENDIX D

# INTERNAL REVENUE SERVICE

# PRONOUNCEMENTS

REV. RUL. 71-177

**Summary:** For depreciation and investment credit purposes, the cost of a new computer includes software cost not separately stated and capitalized in accordance with the taxpayer's consistent practice.

**Text:** During 1968, a taxpayer purchased a new computer. The cost of the software provided with the computer was not separately stated. In accordance with his consistent practice, the taxpayer capitalized the entire cost of the computer, including the cost of the software provided with it, and deducted depreciation thereon based upon a useful life in excess of four years.

Held, the cost of the computer, in the instant case, includes the cost of the software provided with it for purposes of the depreciation allowed under Section 167 of the Internal Revenue Code of 1954 and the investment credit allowed under Section 38 of the Code.

REV. RUL. 71-248

**Summary:** The capitalization of software costs with respect to a new computer where such costs had previously been

expensed is a change in method of accounting requiring the Commissioner's consent.

**Text:** Advice has been requested as to the proper treatment for Federal income tax purposes of certain software costs under the circumstances described below.

A corporation purchased a computer in 1965 which is still in use. Software costs incurred in connection with that computer have been expensed for both book and Federal income tax purposes.

In 1970, the corporation purchased a new computer which was installed in 1971. The installation of the new computer required the development by the corporation of an entirely new set of software for use with it. Software costs were incurred by the corporation in 1970 in connection with programming the new computer that the corporation desires to defer and amortize. Annual software costs in small mounts will continue to be incurred and deducted with respect to the old computer.

Specifically, the question here relates to whether the deferral and amortization of software cost

incurred in connection with the new computer would constitute a change in method of accounting requiring the Commissioner's consent.

Section 3.01-1 of Revenue Procedure 69-21, C.B. 1969-2, 303, states that the costs of developing software by a taxpayer (whether or not the particular software is patented or copyrighted), in many respects, so closely resemble the kind of research and experimental expenditures that fall within the purview of Section 174 of the Internal Revenue Code of 1954 as to warrant accounting treatment similar to that accorded such costs under that Section. Accordingly, it was stated that the Service would not disturb a taxpayer's treatment of costs incurred in developing software where all the costs properly attributable to the development of software by the taxpayer are consistently treated as current expenses and deducted in full in accordance with rules similar to those applicable under Section 174(a) of the Code.

In addition, Section 3.01-2 of Revenue Procedure 69-21 states that the Service would not disturb a taxpayer's treatment of costs incurred in its

developing software where all the cost properly attributable to the development of software by the taxpayer are consistently treated as capital expenditures that are recoverable through deductions for ratable amortization, in accordance with rules similar to those provided by Section 174(b) of the Code, and the regulations thereunder, over a period of five (5) years from the date of completion of such development or over a shorter period where the taxpayer clearly establishes that such costs have a useful life of less than five (5) years.

Section 1.174-3(a) of the Income Tax Regulations permits research and experimental expenditures to be treated on a project-by-project basis.

Revenue Ruling 68-144, 1968-1, C.B. 85, holds that where a taxpayer had elected to currently expense all research and experimental expenditures with the exception of those on particular projects to which the deferred expense method was elected, it cannot in a later year elect the deferred expense method on new projects unless permission is granted by the Commissioner.

Since, as stated above, the costs of developing software closely resemble the kind of research and experimental expenditures that fall within the purview of Section 174 of the Code, such software costs may be treated on a project-by-project basis. Thus, the corporation which has treated as current deductions the costs of software in connection with the old computer, may capitalize software costs with respect to the new computer only where permission is granted by the Commissioner.

An application for permission to change to a different method of treating software costs shall be in writing and shall be addressed to the Commissioner of Internal Revenue, Attention T:I, Washington, D.C. 20024. The application shall include the name and address of the taxpayer, shall be signed by the taxpayer (or his duly authorized representative), and shall be filed no later than the last day of the first taxable year for which the change in method is to apply. The application shall--

1. State the first year to which the requested change is to be applicable;

2. State whether the change is to apply to all software costs paid or incurred, or only to expenditures attributable to a particular project;

3. Include such information as will identify the projects to which the change is applicable;

4. Indicate the number of months selected for amortization of the costs, if any, which are to be treated as deferred expenses;

5. State that, upon approval of the application, the taxpayer will make an accounting segregation on his books and records of software costs to which the change is to apply;

6. State the reasons for the change.

REV. PROC. 69-21

**Summary:** Guidelines in connection with the examination of Federal income tax returns involving costs incurred to develop, purchase, or lease computer software.

**Text:** **Section 1. Purpose**

The purpose of this Revenue Procedure is to provide guidelines to be used in connection with the examination of Federal income tax returns involving the costs of computer software.

**Section 2. Background**

For the purpose of this Revenue Procedure, "computer software" includes all programs or routines used to cause a computer to perform a desired task or set of tasks, and the documentation required to describe and maintain those programs. Computer programs of all classes, for example, operating systems, executive systems, monitors, compilers and translaters, assembly routines, and utility programs, as well as application programs, are included. "Computer software" does not include procedures which are

external to computer operations, such as instructions to transcription operators and external control procedures.

**Section 3. Costs of Developing Software**

.01 The costs of developing software (whether or not the particular software is patented or copyrighted), in many respects, so closely resemble the kind of research and experimental expenditures that fall within the purview of Section 174 of the Internal Revenue Code of 1954 as to warrant accounting treatment similar to that accorded such costs under that Section. Accordingly, the Internal Revenue Service will not disturb a taxpayer's treatment of cost incurred in developing software, either for his own use or to be held by him for sale or lease to others, where:

1. All of the costs properly attributable to the development of software by the taxpayer are consistently treated as current expenses and

deducted in full in accordance with rules similar to those applicable under Section 174(a) of the Code; or

2. All of the costs properly attributable to the development of software by the taxpayer are consistently treated as capital expenditures that are recoverable through deductions for ratable amortization, in accordance with rules similar to those provided by Section 174(b) of the Code and the regulations thereunder, over a period of five (5) years from the date of completion of such development or over a shorter period where such costs are attributable to the development of software that the taxpayer clearly establishes has a useful life of less than five (5) years.

## Section 4. Costs of Purchased Software

.01 With respect to cost of purchased software, the Service will not disturb the taxpayer's treatment of such costs if the following practices are consistently followed:

1. Where such costs are included, without being separately stated, in the cost of the hardware (computer) and such costs are treated as a part of the cost of the hardware that is capitalized and depreciated; or

2. Where such costs are separately stated, and the software is treated by the taxpayer as an intangible asset the cost of which is to be recovered by amortization deductions ratably over a period of five (5) years or such shorter period as can be established by the taxpayer as appropriate in any particular case if the useful life of the software in his hands will be less than five years.

## Section 5. Leased Software

Where a taxpayer leases software for use in his trade or business, the Service will not disturb a deduction allowable under the provisions of Section 1.162-11 of the Income Tax Regulations, for rental.

## Section 6. Application

.01 The costs of development of software in accordance with the above procedures will be treated as a method of accounting. Any change in the treatment of such costs is a change in method of accounting subject to the provisions of Sections 446 and 481 of the Code and the regulations thereunder.

.02 For taxable years ending after October 27, 1969, the date of publication of this Revenue Procedure, the Service will not disturb the taxpayer's treatment of software costs that are handled in accordance with the practices described in this Revenue Procedure.

.03 For taxable years ending prior to the date of publication of this Revenue Procedure, the Service will not disturb the taxpayer's treatment of software costs except to the extent that such treatment is markedly inconsistent with the practices described in this Revenue Procedure. For the purpose of applying the preceding sentence, the absence of any formal election similar to that required by Section 174 of the Code, or the amortization of capitalized software costs over a period other than the five-year period specified in Section 174(b) of the Code, will not characterize the taxpayer's treatment of such costs as markedly inconsistent with the principles of this Revenue Procedure.

# APPENDIX F

# DATA PROCESSING MANAGEMENT ASSOCIATION

# POSITION STATEMENT ON

# SOFTWARE TAXATION

**DATA PROCESSING MANAGEMENT ASSOCIATION**

**POSITION STATEMENT**

# SOFTWARE TAXATION

**(Adopted by DPMA Executive Council August, 1977, modified by DPMA Executive Council July, 1981, and authorized for re-issue)**

The Tennessee Supreme Court defined computer software as "information and directions loaded into the machine which dictates different functions for the machine to perform. What triggers these functions are referred to broadly as 'programs,' and are often accompanied by magnetic tapes and discs, punch cards, manuals, flow charts, and expert engineering assistance to comprise what is known in the industry as computer software." Commerce Union Bank vs. George Tidwell, June 14, 1976.

According to the decision, congruous with early decisions by courts in Alabama and Florida followed by subsequent rulings in other states, computer software is an intangible personal service. Any tangible property, if used, is an inconsequential element of intangible software for that:

1. Said software may be entered into a computer directly or via telephone lines with no tangible property with the identical result as if tangible property were used as the input communications medium.

2. Such communications media are merely intermediate input means of entering software into a computer on a one-time basis before it is transformed into its tangible end state of binary pulses.

3. Said tangible property, if any, is either destroyed or reused after being used to transfer the intangible information therein to the computer on a one-time basis leaving instructions (program) and information (data) in the computer in the form of binary pulses as the intangible end state.

4. The value of said tangible property, if any, is small, five percent or less, in comparison to the value of said intangible software.

5. Any tangible property, if used, has virtually no value in itself. Any value is in the information which is valuable only when read by the computer into its tangible end state of binary pulses.

DPMA agrees that software is an intangible personal service and believes it should be accorded the same treatment as services by other professions under the law.

# APPENDIX F

## SOFTWARE VENDOR QUESTIONNAIRE

June 27, 1983

Dear Financial Officer:

In view of the diversity of accounting practices, the National Association of Accountants is conducting an important research study concerning software accounting policies. This study is expected to provide information that will help accounting executives make intelligent decisions in this increasingly important area.

The results will be made available to the AICPA Task Force on Accounting for the Development and Sale of Computer Software. This task force will soon make a recommendation to the Accounting Standards Executive Committee (AcSEC), which in turn will make a recommendation to the Financial Accounting Standards Board, the rule-making body of the accounting profession. The Securities and Exchange Commission has also expressed an interest in seeing the results of our survey. The NAA's Management Accounting Practices Committee will also receive the survey results, and may issue a Statement on Management Accounting on the topic of accounting for software.

In order to obtain factual information, we are asking selected executives of software vending companies to complete the enclosed questionnaire. Most of the questions require that you check a response or give a brief reply, so the questionnaire should not take more than a few minutes to complete, although I would urge you to consider each response carefully. We would also appreciate any comments on the issues you choose to add.

Results will be tabulated and incorporated into the research report. Individual company responses will be confidential.

Please send the completed questionnaire to me in the enclosed envelope. In order to be included in the study we must receive your responses no later than July 15. If you check the "yes" box on the last page of the questionnaire, we shall send you a copy of the survey results when available. If you prefer anonymity, you may send your request separately.

Thank you for your cooperation.

Very truly yours,

Robert W. McGee
Manager, Accounting Practices

RWM/lw/MAP8A:VL1

NATIONAL ASSOCIATION OF ACCOUNTANTS
919 Third Avenue
New York, NY 10022
(212) 754-9700
c/o Robert W. McGee

# QUESTIONNAIRE

# SOFTWARE VENDORS

***Instructions: Please check appropriate response(s) and answer follow-up questions. If all software costs including purchased software are expensed, go to question number seven.***

## A. Financial Reporting for Software

1. What amortization method and time period range are used for *financial statement purposes* to amortize: (1) purchased software intended for: (a) internal use or (b) resale; (2) internally developed software intended for: (a) internal use or (b) sale?

| | | Purchased for | | Internally developed for | |
|---|---|---|---|---|---|
| | | Internal Use | Resale | Internal Use | Sale |
| None. All such costs are expensed | 01 | | | | |
| Straight line method | 02 | | | | |
| Sum of the years digits method | 03 | | | | |
| ____% declining balance method | 04 | | | | |
| Units sold method | 05 | | | | |
| Other (specify) | 06 | | | | |

Amortization period range for each category, in years (e.g. 3-5) _____

2. How are software costs classified on the balance sheet?

| | | Purchased for | | Internally developed for | |
|---|---|---|---|---|---|
| | | Internal Use | Resale | Internal Use | Sale |
| Specific current asset line item | 01 | | | | |
| Inventory | 02 | | | | |
| Other current asset | 03 | | | | |
| Specific noncurrent asset line item | 04 | | | | |
| Included in fixed assets without separate disclosure | 05 | | | | |
| Other noncurrent assets | 06 | | | | |
| Footnote disclosure | 07 | | | | |
| Other (specify) | 08 | | | | |
| Not included on balance sheet | 09 | | | | |

3. Software costs appearing on the balance sheet represent what percent of total assets?

| _____ % |
|---|

4. What costs are capitalized for internally developed software that is intended for: (1) internal use; (2) sale.

| | | Internal Use | Sale |
|---|---|---|---|
| Feasibility costs | 01 | | |
| Design costs | 02 | | |
| Coding costs | 03 | | |
| Testing costs | 04 | | |
| Support costs | 05 | | |
| Service costs | 06 | | |
| Other (specify) | 07 | | |

5. For how many years has your company been capitalizing software costs?

| _____ years |
|---|

6. Software costs that are not expensed are capitalized because:

| | | |
|---|---|---|
| The matching concept | 01 | |
| An asset has been created | 02 | |
| Inclusion improves our ability to raise capital | 03 | |
| Inclusion improves net income and EPS | 04 | |
| Other (specify) | 05 | |

7. Software costs that are not capitalized are expensed because:

| | | |
|---|---|---|
| Such costs are considered research and development. | 01 | |
| Uncertainty as to realization makes expensing prudent. | 02 | |
| R&D cost elements are not easily separated from non-R&D costs, so all costs are expensed. | 03 | |
| Our CPA firm strongly recommends that such costs be expensed. Management is of the opinion that certain software costs should be capitalized | 04 | |
| They are immaterial in amount. | 05 | |
| They are expensed for tax purposes, and we want to use the same accounting method per tax and book whenever possible | 06 | |
| Other (specify) | 07 | |

## B. Software Accounting Policies

8. If a product intended for sale is found to be unmarketable, but the coding is partially or wholly reusable, and is reused in a new product intended for sale:

| | | |
|---|---|---|
| Previously incurred costs are never borne by the new product (all costs are borne by the original product) | 01 | |
| Previously incurred costs are apportioned if appropriate and charged to the new product. | 02 | |
| All previously incurred costs will be borne by the new product. | 03 | |

9. How are development costs shared between an internally used product and a product developed for sale that uses all or a substantial portion of the code?

| | | |
|---|---|---|
| Costs are shared equally between the products. | 01 | |
| Costs are apportioned. (Specify) | 02 | |
| All costs are borne by the internally used product. | 03 | |
| All costs are borne by the product intended for sale. | 04 | |
| Costs are apportioned at current rather than historical cost | 05 | |

_____

_____

10. Does your company provide reserves for future maintenance costs incurred in fulfilling warranty obligations?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |

If "yes," how are such reserves estimated? _____

_____

11. Do you think the accounting treatment for purchased software should be different than the accounting treatment for comparable internally developed software?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |
| No opinion | 03 | |

If "yes," why? _____

_____

_____

## C. Software Accounting Implications for your Company

12. The inability to include software costs on the balance sheet adversely affects your ability to raise capital.

| | | |
|---|---|---|
| Agree | 01 | |
| Disagree | 02 | |
| No opinion | 03 | |

Comments: _____

_____

_____

13. The inability to include software costs on the balance sheet adversely affects the interest rate your company must pay to obtain capital.

| | | |
|---|---|---|
| Agree | 01 | |
| Disagree | 02 | |
| No opinion | 03 | |

14. If all software development costs were expensed rather than capitalized, the level of these expenditures for software companies would have to be much lower; companies would be forced to put a cap on investment in new product programs in order to reflect good earnings performance to shareholders.

| | | |
|---|---|---|
| Agree | 01 | |
| Disagree | 02 | |
| No opinion | 03 | |

15. If all software development costs were expensed rather than capitalized, the price of your company's stock, if publicly traded, would be adversely affected.

| | | |
|---|---|---|
| Agree | 01 | |
| Disagree | 02 | |
| No opinion | 03 | |

16. If all software development costs were expensed rather than capitalized, your company's long-term growth would be adversely affected.

| | | |
|---|---|---|
| Agree | 01 | |
| Disagree | 02 | |
| No opinion | 03 | |

17. Your company sometimes purchases software that could be internally developed because it is easier to justify placing purchased software costs on the balance sheet.

| | | |
|---|---|---|
| Agree | 01 | |
| Disagree | 02 | |
| No opinion | 03 | |

18. If company policy were to expense all software costs as incurred rather than to capitalize a portion of software costs, my company's net income would be reduced by _____%.

19. Has your company ever used an R&D partnership, limited partnership or other off balance sheet arrangement in connection with software development?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |
| No opinion | 03 | |

If "yes," what were your reasons for using such an arrangement?

_____

_____

_____

_____

## D. Taxation of Software

20. On which categories of software is the investment tax credit or R&D tax credit taken?

| | | Investment tax credit | R&D tax credit |
|---|---|---|---|
| Internally developed software intended for sale | 01 | | |
| Internally developed software intended for internal use | 02 | | |
| Purchased software intended for resale | 03 | | |
| Purchased software intended for internal use | 04 | | |

21. Is the same software item ever:

| | 01 Yes | 02 No |
|---|---|---|
| Capitalized for financial statement purposes and expensed for tax purposes? | | |
| Capitalized for tax purposes and expensed for financial statement purposes? | | |

If *either* of the above answers is "yes", please use this space to describe why different treatments are used for tax and financial accounting purposes:

22. If software is capitalized for both financial statement and tax purposes, are the amortization method and time period used the same?

| | |
|---|---|
| Yes | 01 |
| No | 02 |

If "no," please use this space to describe why different treatments are used for tax and financial accounting purposes?

23. How is software classified:

| | 01 Tangible | 02 Intangible |
|---|---|---|
| For federal tax purposes? | | |
| For state sales/use tax purposes? | | |
| For personal property tax purposes? | | |

24. Has your company been a party to litigation involving the sales taxability of software in the last three years?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |

If "yes," which state(s)? _____

_____

_____

_____

What were the issues? _____

_____

_____

_____

**E. Company Profile**

25. Which public accounting firm signs the opinion for your company's financial statements?

| | | |
|---|---|---|
| Arthur Andersen & Co. | 01 | |
| Arthur Young & Company | 02 | |
| Coopers & Lybrand | 03 | |
| Deloitte Haskins & Sells | 04 | |
| Ernst & Whinney | 05 | |
| Main Hurdman | 06 | |
| Peat, Marwick, Mitchell & Co. | 07 | |
| Price Waterhouse | 08 | |
| Seidman & Seidman | 09 | |
| Touche Ross & Co. | 10 | |
| None | 11 | |
| Other (specify) | 12 | |

_____

26. Total software related revenues for the most recent fiscal year were:

| | | |
|---|---|---|
| More than $50 million | 01 | |
| Between $20 — $50 million | 02 | |
| Between $5 — $20 million | 03 | |
| Less than $5 million | 04 | |

27. The company is:

| | | |
|---|---|---|
| Privately held | 01 | |
| Publicly held | 02 | |

28. Title of person filling out this questionnaire

_____

_____

**Optional Information**

Company name and address _____

_____

_____

_____

Name and telephone number of person filling out this questionnaire

_____

Would you be willing to participate in a confidential telephone interview?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |

Would you like to receive a summary of the research results?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |

# APPENDIX G

# SOFTWARE USER QUESTIONNAIRE

NATIONAL ASSOCIATION OF ACCOUNTANTS
919 Third Avenue
New York, N.Y. 10022
(212) 754-9700
c/o Robert W. McGee

# QUESTIONNAIRE

## USERS OF SOFTWARE
## ACCOUNTING ASPECTS

***Instructions: Please check appropriate response(s) and answer follow-up questions. IF ALL SOFTWARE COSTS ARE EXPENSED FOR FINANCIAL STATEMENT PURPOSES, PLEASE GO TO QUESTION NO. 8.***

### A. Financial Reporting for Software

1. What amortization method and time period range are used for *financial statement purposes* to amortize: (1) purchased/leased: (a) systems software, (b) applications software; (2) internally developed: (a) systems software, (b) applications software?

| | | Purchased | | Internally developed | |
|---|---|---|---|---|---|
| | | Systems Software | Applications Software | Systems Software | Applications Software |
| None. All such costs are expensed | 01 | | | | |
| Straight-line method | 02 | | | | |
| Sum of the years digits method | 03 | | | | |
| % declining balance method | 04 | | | | |
| Other (specify) | 05 | | | | |

Amortization period range for each category, in years (e.g. 3-5) _____ _____ _____ _____

2. What costs are capitalized for *internally developed* software?

| | | Systems Software | Applications Software |
|---|---|---|---|
| Feasibility costs (and other costs incurred prior to design costs in the software product life cycle.) | 01 | | |
| Design costs | 02 | | |
| Coding costs | 03 | | |
| Testing costs | 04 | | |
| Support costs | 05 | | |
| Service costs | 06 | | |
| Other (specify) | 07 | | |

3. For compilers, system control programs and other software that is an integral part of the hardware, the software is:

| | | |
|---|---|---|
| Expensed | 01 | |
| Amortized over the same period as the hardware | 02 | |
| Amortized over a shorter period than the hardware | 03 | |
| Other (Specify) | 04 | |

4. Software maintenance and enhancement costs are:

| | | Maintenance | Enhancement |
|---|---|---|---|
| Expensed as incurred | 01 | | |
| Amortized over the remaining life of the original program | 02 | | |
| Assigned its own life and amortized over _____ years using the _____ method of amortization | 03 | | |
| Other (specify) | 04 | | |

5. During the amortization period, are there periodic financial reviews or checkpoints to determine the need for write-offs of assets?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |

6. Software costs appearing on the balance sheet represent what percent of total assets?

_____ %

7. Software costs that are not expensed are capitalized because:

| | | |
|---|---|---|
| The matching concept | 01 | |
| An asset has been created | 02 | |
| Capitalization improves our ability to raise capital | 03 | |
| Capitalization improves net income and EPS | 04 | |
| Other (specify) | 05 | |

8. Software costs that are not capitalized are expensed because:

| | | |
|---|---|---|
| Such costs are considered research and development. | 01 | |
| Uncertainty as to realization makes expensing prudent. | 02 | |
| R&D cost elements are not easily separated from non-R&D costs, so all costs are expensed. | 03 | |
| Our CPA firm strongly recommends that such costs be expensed. Management is of the opinion that certain software costs should be capitalized. | 04 | |
| They are immaterial in amount. | 05 | |
| They are expensed for tax purposes, and we want to use the same accounting method per tax and book whenever possible. | 06 | |
| Other (specify) | 07 | |

9. How are software costs reflected on the balance sheet?

| | | Purchased | | Internally developed | |
|---|---|---|---|---|---|
| | | Systems Software | Applications Software | Systems Software | Applications Software |
| Not included in balance sheet | 01 | | | | |
| Current asset | 02 | | | | |
| Included in fixed assets without separate disclosure | 03 | | | | |
| Other noncurrent assets | 04 | | | | |
| Footnote disclosure | 05 | | | | |
| Other (specify) | 06 | | | | |

10. If software is leased, are the accounting rules for capital leasing considered when determining how to account for the software cost?

| | | |
|---|---|---|
| Yes, as a matter of corporate policy | 01 | |
| Yes, if the cost is more than a certain dollar amount | 02 | |
| No | 03 | |
| Other (specify) | 04 | |

11. Do you think the accounting treatment for purchased software should be different than the accounting treatment for comparable internally developed software?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |
| No opinion | 03 | |

Why? _____

12. What impact, if any, has the SEC software moratorium had on your company?

_____

_____

**B. Tax Reporting**

13. On which categories of software cost is the investment tax credit or R&D tax credit taken?

| | | Investment tax credit | R&D tax credit |
|---|---|---|---|
| Internally developed systems software. | 01 | | |
| Internally developed applications software | 02 | | |
| Purchased systems software. | 03 | | |
| Purchased applications software. | 04 | | |

14. How is software classified:

| | 01 Tangible | 02 Intangible |
|---|---|---|
| For federal tax purposes? | | |
| For state sales/use tax purposes? | | |
| For personal property tax purposes? | | |

15. Is the same software item ever:

| | 01 Yes | 02 No |
|---|---|---|
| Capitalized for financial statement purposes and expensed for tax purposes? | | |
| Capitalized for tax purposes and expensed for financial statement purposes? | | |

If either of the above answers is "yes," please use this space to describe why different treatments are used for tax and financial accounting purposes: _____

_____

_____

16. If software is capitalized for both financial statement and tax purposes, are the amortization method and time period used the same?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |

If "no, please use this space to describe why different treatments are used for tax and financial accounting purposes: _____

_____

_____

17. What impact, if any, will the proposed Treasury Regulations on research and experimental expenditures, if adopted, have on your company with respect to software (reported in the Federal Register January 21, 1983, page 2799, right column)?

_____

_____

_____

Please feel free to elaborate on any answer given, and to include any other data that you feel would make this study more meaningful.

## C. Company Profile

18. A. If your primary business is manufacturing or transportation, annual sales for the most recent fiscal year were:

| | | |
|---|---|---|
| More than $1 billion | 01 | |
| $500 million to $1 billion | 02 | |
| Less than $500 million | 03 | |

B. If your primary business is Financial services or a public utility, assets at the end of the most recent fiscal year were:

| | | |
|---|---|---|
| More than $5 billion | 01 | |
| $5 billion or less | 02 | |

19. Do you consider your company to be primarily involved in:

| | | |
|---|---|---|
| Manufacturing | 01 | |
| Financial Services | 02 | |
| Other Sevices | 03 | |
| Transportation | 04 | |
| Public Utility | 05 | |
| Other (specify) | 06 | |

Title of person filling out this questionnaire

_____

_____

NAA 650 7/83

**Optional Information**

Company name and address _____

_____

_____

_____

Name and telephone number of person filling out this questionnaire

_____

Would you be willing to participate in a confidential telephone interview?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |

Would you like to receive a summary of the research results?

| | | |
|---|---|---|
| Yes | 01 | |
| No | 02 | |

# APPENDIX H

## FIRST BANKER QUESTIONNAIRE

NATIONAL ASSOCIATION OF ACCOUNTANTS

919 THIRD AVENUE • NEW YORK, NEW YORK 10022 (212) 754-7900

July 28, 1983

Dear Lending Officer:

The National Association of Accountants, with a membership approaching 100,000 is a leader in management accounting. Its Management Accounting Practices Committee is conducting a research study and would very much appreciate your assistance.

We are asking selected commercial lending officers to complete the enclosed questionnaire. The accompanying financial data is for a hypothetical company located in your city that is applying for a line of credit or term loan at your bank. We would like to determine the amount and the terms of the line or term loan you would grant.

The questionnaire is quite short, but I would urge you to consider each response carefully. I would also appreciate any comments you choose to add.

Results will be tabulated and incorporated into a research report. Individual responses will be confidential.

Please send the completed questionnaire to me in the enclosed envelope. The accompanying financial data need not be returned. In order to be included in the study we must receive your response no later than August 29. If you would like a copy of the research results, please indicate that fact in the questionnaire.

Thank you for your cooperation.

Very truly yours,

Robert W. McGee

Robert W. McGee
Manager, Accounting Practices

RWM/ceo/A1-12

NATIONAL ASSOCIATION OF ACCOUNTANTS

919 THIRD AVENUE • NEW YORK, NEW YORK 10022 (212) 754-9700

September 1, 1983

SECOND REQUEST: Please disregard if you have already responded.

Dear Lending Officer:

The National Association of Accountants, with a membership approaching 100,000 is a leader in management accounting. Its Management Accounting Practices Committee is conducting a research study and would very much appreciate your assistance.

We are asking selected commercial lending officers to complete the enclosed questionnaire. The accompanying financial data is for a hypothetical company located in your city that is applying for a line of credit or term loan at your bank. We would like to determine the amount and the terms of the line or term loan you would grant.

The questionnaire is quite short, but I would urge you to consider each response carefully. I would also appreciate any comments you choose to add.

Results will be tabulated and incorporated into a research report. Individual responses will be confidential.

Please send the completed questionnaire to me in the enclosed envelope. The accompanying financial data need not be returned. In order to be included in the study we must receive your response no later than September 20. If you would like a copy of the research results, please indicate that fact in the questionnaire. Please disregard this letter if you have already responded.

Thank you for your cooperation.

Very truly yours,

Robert W. McGee

Robert W. McGee
Manager, Accounting Practices

RWM/pm

**NATIONAL ASSOCIATION OF ACCOUNTANTS**
**919 Third Avenue**
**New York, NY 10022**
**(212) 754-9700**
**c/o Robert W. McGee**

# QUESTIONNAIRE

## CAMPBELL CORPORATION

Instructions: The above-mentioned corporation has applied to your bank for a line of credit or term loan. Please indicate the amount of the line you would grant, or whether the term loan would be approved, and additional terms you would require.

A. **Line of Credit**

1. How large a line of credit would your bank be willing to grant to this company?

_____

_____

2. If your bank would not approve a line of credit for this company, please indicate why the application would be denied.

_____

_____

_____

_____

_____

If your bank would not grant a line of credit to this company and you have answered the previous question, please go to question no. 5. Otherwise, proceed to the next question.

3. What rate of interest would you charge?

_____

_____

4. What additional terms would you impose?

_____

_____

_____

_____

B. **Term Loan**

5. If, instead of a line of credit, the company had applied for a $2,000,000, 5 year loan, would your bank grant the loan?

_____ a. Yes
_____ b. No

6 . Do you consider this loan to be:

_____ a. extremely risky
_____ b. risky
_____ c. marginal
_____ d. safe
_____ e. extremely safe

7. If your bank would not approve this term loan, please indicate why the application would be denied.

_____

_____

_____

_____

_____

If your bank would not grant this term loan and you have answered the previous question, please go to question no. 14. Otherwise, proceed to the next question.

8. What rate of interest would you charge for the term loan?

_____

_____

9. What compensatory balance would be required?

_____

_____

10. What restrictions on working capital would be imposed?

_____

_____

11. How much additional debt would the company be permitted to incur?

_____

_____

12. What is the maximum annual dividend that could be paid?

_____

_____

13. What additional terms would you impose?

_____

_____

_____

_____

C. **Respondent Profile**

14. The bank's total assets are:
    _____ a. more than $5 billion.
    _____ b. $5 billion or less.

15. The person completing this questionnaire has had _____ years experience in a loan department.

16. The person completing this questionnaire is a(n):
    _____ a. senior or executive vice president of other senior officer.
    _____ b. vice president, secretary or treasurer.
    _____ c. assistant vice president or other assistant officer.
    _____ d. not an officer.

17. The office where this questionnaire is being completed is located in the:

_____ a. Northeast (CT, MA, ME, NH, NJ, NY, PA, RI, VT)

_____ b. South (AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV)

_____ c. North Central (IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI)

_____ d. West (AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY)

D. **Optional Information**

18. Would you be willing to participate in a confidential telephone interview?

_____ a. Yes

_____ b. No

If yes, please indicate your name and telephone number _____

_____ .

19. If you would like to receive a copy of the research findings, please indicate where the findings should be sent.

_____

_____

_____

**NATIONAL ASSOCIATION OF ACCOUNTANTS**
**919 Third Avenue**
**New York, NY 10022**
**(212) 754-9700**
**c/o Robert W. McGee**

# QUESTIONNAIRE

## EDWARDS CORPORATION

Instructions: The above-mentioned corporation has applied to your bank for a line of credit or term loan. Please indicate the amount of the line you would grant, or whether the term loan would be approved, and additional terms you would require.

### A. Line of Credit

1. How large a line of credit would your bank be willing to grant to this company?

   _____

   _____

2. If your bank would not approve a line of credit for this company, please indicate why the application would be denied.

   _____

   _____

   _____

   _____

   _____

   If your bank would not grant a line of credit to this company and you have answered the previous question, please go to question no. 5. Otherwise, proceed to the next question.

3. What rate of interest would you charge?

   _____

   _____

4. What additional terms would you impose?

   _____

   _____

   _____

   _____

### B. Term Loan

5. If, instead of a line of credit, the company had applied for a $2,000,000, 5 year loan, would your bank grant the loan?

   _____ a. Yes

   _____ b. No

6. Do you consider this loan to be:

   _____ a. extremely risky

   _____ b. risky

   _____ c. marginal

   _____ d. safe

   _____ e. extremely safe

7. If your bank would not approve this term loan, please indicate why the application would be denied.

_____

_____

_____

_____

_____

If your bank would not grant this term loan and you have answered the previous question, please go to question no. 14. Otherwise, proceed to the next question.

8. What rate of interest would you charge for the term loan?

_____

_____

9. What compensatory balance would be required?

_____

_____

10. What restrictions on working capital would be imposed?

_____

_____

11. How much additional debt would the company be permitted to incur?

_____

_____

12. What is the maximum annual dividend that could be paid?

_____

_____

13. What additional terms would you impose?

_____

_____

_____

_____

C. **Respondent Profile**

14. The bank's total assets are:
    _____ a. more than $5 billion.
    _____ b. $5 billion or less.

15. The person completing this questionnaire has had _____ years experience in a loan department.

16. The person completing this questionnaire is a(n):
    _____ a. senior or executive vice president of other senior officer.
    _____ b. vice president, secretary or treasurer.
    _____ c. assistant vice president or other assistant officer.
    _____ d. not an officer.

17. The office where this questionnaire is being completed is located in the:
    _____ a. Northeast (CT, MA, ME, NH, NJ, NY, PA, RI, VT)
    _____ b. South (AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV)
    _____ c. North Central (IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI)
    _____ d. West (AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY)

D. **Optional Information**

18. Would you be willing to participate in a confidential telephone interview?
    _____ a. Yes
    _____ b. No
    If yes, please indicate your name and telephone number _____
    _____

19. If you would like to receive a copy of the research findings, please indicate where the findings should be sent.
    _____
    _____
    _____

# APPENDIX I

## SECOND BANKER QUESTIONNAIRE

February 3, 1984

Dear Lending Officer:

The National Association of Accountants is conducting a research study to determine the effect certain financial data has on bank lending decisions. The results of this study are expected to be of interest both to accountants and commercial lending officers, and we are asking a select number of lending officers such as yourself to help us make this study a success by completing the enclosed brief questionnaire. We would like to learn your views.

The questionnaire is quite short, but I would urge you to consider each response carefully. I would also appreciate any comments you choose to add. Individual responses will remain confidential.

Please assist us in making this study a success by sending me the completed questionnaire in the enclosed envelope. The accompanying financial data need not be returned. If you would like to receive a copy of the research results, please indicate that fact in the questionnaire.

Please have your response in the mail no later than February 24, 1984.

Thank you for your cooperation.

Very truly yours,

Robert W. McGee

Robert W. McGee
Manager
Management Accounting Practices

Enclosure

RWM/jc/CPTE/WL1

NATIONAL ASSOCIATION OF ACCOUNTANTS
919 Third Avenue New York, NY 10022
(212) 754-9700 c/o Robert W. McGee

# COMMERCIAL LENDING OFFICER QUESTIONNAIRE

## BACKGROUND

The two fictitious companies in this study are Campbell Corporation and Edwards Corporation. Both companies apply to your bank for a loan and are new prospective customers that could establish a long-term relationship with your bank. For purposes of these applications, assume that:

1. These applications are the only ones pending in your files;
2. Loanable funds in your bank are scarce, but are sufficient to grant both loan requests;
3. Management of both firms expect past trends of the results of operations and financial position to continue into the near future;
4. The integrity and competence of management of both companies is impeccable;
5. Granting the loans will not violate any laws or bank lending policies;
6. The loans are to be repaid in a single payment from funds generated from operations;
7. A 20-30% compensating balance is to be maintained.

INSTRUCTIONS: Please fill in the blanks or place an "X" in the space provided. If a question does not apply, leave it blank.

A. *Lending Questions*

For questions 1-6, assume that Campbell Corporation and Edwards Corporation each apply for a $3 million unsecured 5 year term loan. The proceeds are to be used to acquire the rights to additional software that is believed to be marketable, but has not yet been marketed.

1. Would your bank grant the loan?

| | Campbell | Edwards |
|---|---|---|
| a. Yes | _____ | _____ |
| b. No | _____ | _____ |

2. What interest rate would you charge?

| | Campbell | Edwards |
|---|---|---|
| Prime plus | _____% | _____% |

3. How would you rate this loan for each corporation?

| | Campbell | Edwards |
|---|---|---|
| a. Extremely risky | _____ | _____ |
| b. Risky | _____ | _____ |
| c. Marginal | _____ | _____ |
| d. Safe | _____ | _____ |
| e. Extremely safe | _____ | _____ |

4. On a scale of 0% - 100%, what are the chances that the corporation will default on the loan, if made?

Campbell _____% Edwards _____%

5. Additional terms are sometimes imposed on commercial loans. For example, there may be restrictions on working capital, further debt, dividends, officers' salaries, etc. If your bank granted a loan to both Campbell and Edwards, would lending terms be:

_____a. More restrictive for Campbell than for Edwards
_____b. Less restrictive for Campbell than for Edwards
_____c. Equally restrictive



(SEE OTHER SIDE)

6. For purposes of this question only, assume that your bank had only $5 million available to lend. How much would be lent to:

   Campbell $_____ Edwards $_____

7. If, instead of a term loan, Campbell and Edwards each applied for an unsecured line of credit, what is the maximum line your bank would be willing to grant to:

   Campbell $_____ Edwards $_____

8. If your bank would treat applications by Campbell and Edwards differently, please indicate the reasons for the different treatments.
   Feel free to use more space if needed.

   _____

   _____

   _____

   _____

   _____

B. *Respondent Profile*

9. The bank's total assets are:
   _____a. More than $5 billion
   _____b. $5 billion or less

10. The person completing this questionnaire has had _____ years experience in a loan department.

11. The person completing this questionnaire is a(n):
   _____a. Senior or executive vice president or other senior officer
   _____b. Vice president, secretary or treasurer
   _____c. Assistant vice president or other assistant officer
   _____d. Not an officer.

12. The office where this questionnaire is being completed is located in the:
   _____a. Northeast (CT,MA,ME,NH,NJ,NY,PA,RI,VT)
   _____b. South (AL,AR,DE,DC,FL,GA,KY,LA,MD,MS,NC,OK,PR,SC,TN,TX,VA,WV)
   _____c. North Central (IL,IN,IA,KS,MI,MN,MO,NE,ND,OH,SD,WI)
   _____d. West (AK,AZ,CA,CO,HI,ID,MT,NV,NM,OR,UT,WA,WY)

C. *Optional Information*

13. Would you be willing to participate in a confidential telephone interview?
   If yes, please indicate your name and telephone number

   _____

   _____

14. If you would like to receive a copy of the research findings, please indicate where the findings should be sent.

   _____

   _____

   _____

NATIONAL ASSOCIATION OF ACCOUNTANTS
919 Third Avenue New York, NY 10022
(212) 754-9700 c/o Robert W. McGee

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1. These applications are the only ones pending in your files;
2. Loanable funds in your bank are scarce, but are sufficient to grant both loan requests;
3. Management of both firms expect past trends of the results of operations and financial position to continue into the near future;
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6. The loans are to be repaid in a single payment from funds generated from operations;
7. A 20-30% compensating balance is to be maintained.

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A. *Lending Questions*

For questions 1-6, assume that Campbell Corporation and Edwards Corporation each apply for a $3 million unsecured 5 year term loan. The proceeds are to be used to acquire the rights to additional software that is believed to be marketable, but has not yet been marketed.

1. Would your bank grant the loan?

| | Campbell | Edwards |
|---|---|---|
| a. Yes | _____ | _____ |
| b. No | _____ | _____ |

2. What interest rate would you charge?

| | Campbell | Edwards |
|---|---|---|
| Prime plus | _____% | _____% |

3. How would you rate this loan for each corporation?

| | Campbell | Edwards |
|---|---|---|
| a. Extremely risky | _____ | _____ |
| b. Risky | _____ | _____ |
| c. Marginal | _____ | _____ |
| d. Safe | _____ | _____ |
| e. Extremely safe | _____ | _____ |

4. On a scale of 0% - 100%, what are the chances that the corporation will default on the loan, if made?

Campbell _____% Edwards _____%

5. Additional terms are sometimes imposed on commercial loans. For example, there may be restrictions on working capital, further debt, dividends, officers' salaries, etc. If your bank granted a loan to both Campbell and Edwards, would lending terms be:

_____a. More restrictive for Campbell than for Edwards
_____b. Less restrictive for Campbell than for Edwards
_____c. Equally restrictive

(SEE OTHER SIDE)

6. For purposes of this question only, assume that your bank had only $5 million available to lend. How much would be lent to:

   Campbell $_____ Edwards $_____

7. If, instead of a term loan, Campbell and Edwards each applied for an unsecured line of credit, what is the maximum line your bank would be willing to grant to:

   Campbell $_____ Edwards $_____

8. If your bank would treat applications by Campbell and Edwards differently, please indicate the reasons for the different treatments. Feel free to use more space if needed.

   _____

   _____

   _____

   _____

   _____

B. *Respondent Profile*

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   _____a. More than $5 billion
   _____b. $5 billion or less

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11. The person completing this questionnaire is a(n):
   _____a. Senior or executive vice president or other senior officer
   _____b. Vice president, secretary or treasurer
   _____c. Assistant vice president or other assistant officer
   _____d. Not an officer.

12. The office where this questionnaire is being completed is located in the:
   _____a. Northeast (CT,MA,ME,NH,NJ,NY,PA,RI,VT)
   _____b. South (AL,AR,DE,DC,FL,GA,KY,LA,MD,MS,NC,OK,PR,SC,TN,TX,VA,WV)
   _____c. North Central (IL,IN,IA,KS,MI,MN,MO,NE,ND,OH,SD,WI)
   _____d. West (AK,AZ,CA,CO,HI,ID,MT,NV,NM,OR,UT,WA,WY)

C. *Optional Information*

13. Would you be willing to participate in a confidential telephone interview? If yes, please indicate your name and telephone number

   _____

   _____

14. If you would like to receive a copy of the research findings, please indicate where the findings should be sent.

   _____

   _____

   _____

NATIONAL ASSOCIATION OF ACCOUNTANTS
919 Third Avenue New York, NY 10022
(212) 754-9700 c/o Robert W. McGee

# COMMERCIAL LENDING OFFICER QUESTIONNAIRE

## BACKGROUND

The two fictitious companies in this study are Campbell Corporation and Edwards Corporation. Both companies apply to your bank for a loan and are new prospective customers that could establish a long-term relationship with your bank. For purposes of these applications, assume that:

1. These applications are the only ones pending in your files;
2. Loanable funds in your bank are scarce, but are sufficient to grant both loan requests;
3. Management of both firms expect past trends of the results of operations and financial position to continue into the near future;
4. The integrity and competence of management of both companies is impeccable;
5. Granting the loans will not violate any laws or bank lending policies;
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INSTRUCTIONS: Please fill in the blanks or place an "X" in the space provided. If a question does not apply, leave it blank.

A. *Lending Questions*

For questions 1-6, assume that Campbell Corporation and Edwards Corporation each apply for a $3 million unsecured 5 year term loan. The proceeds are to be used to acquire the rights to additional software that is believed to be marketable, but has not yet been marketed.

1. Would your bank grant the loan?

| | Campbell | Edwards |
|---|---|---|
| a. Yes | _____ | _____ |
| b. No | _____ | _____ |

2. What interest rate would you charge?

| | Campbell | Edwards |
|---|---|---|
| Prime plus | _____% | _____% |

3. How would you rate this loan for each corporation?

| | Campbell | Edwards |
|---|---|---|
| a. Extremely risky | _____ | _____ |
| b. Risky | _____ | _____ |
| c. Marginal | _____ | _____ |
| d. Safe | _____ | _____ |
| e. Extremely safe | _____ | _____ |

4. On a scale of 0% - 100%, what are the chances that the corporation will default on the loan, if made?

   Campbell _____% Edwards _____%

5. Additional terms are sometimes imposed on commercial loans. For example, there may be restrictions on working capital, further debt, dividends, officers' salaries, etc. If your bank granted a loan to both Campbell and Edwards, would lending terms be:

   _____a. More restrictive for Campbell than for Edwards
   _____b. Less restrictive for Campbell than for Edwards
   _____c. Equally restrictive

(SEE OTHER SIDE)

# APPENDIX J

# FINANCIAL ANALYST QUESTIONNAIRE

February 1, 1984

Dear Financial Analyst:

The National Association of Accountants is conducting a research study to determine the effect certain financial data has on stock investment decisions. The results of this study are expected to be of interest both to accountants and financial analysts, and we are asking a select number of financial analysts such as yourself to help us make this study a success by completing the enclosed brief questionnaire. We would like to learn your views.

The questionnaire is quite short, but I would urge you to consider each reponse carefully. I would also appreciate any comments you choose to add. Individual responses will remain confidential.

Please assist us in making this study a success by sending me the completed questionnaire in the enclosed envelope. The accompanying financial data need not be returned. If you would like to receive a copy of the research results, please indicate that fact in the questionnaire.

Please have your response in the mail no later than February 20.

Thank you for your cooperation.

Very truly yours,

Robert W. McGee

Robert W. McGee
Manager
Management Accounting Practices

Enclosure

RWM/jc/CPTE/ML1

**NATIONAL ASSOCIATION OF ACCOUNTANTS**
**919 Third Avenue**
**New York, N.Y. 10022**
**(212) 754-9700**
**c/o Robert W. McGee**

# STOCK INVESTMENT

Instructions: Please fill in the blanks or place an "X" in the space provided.

*BACKGROUND*

The two fictitious companies to be compared in this study are Campbell Corporation and Edwards Corporation. The setting of the study is as follows: Suppose you are to consult an individual investor, named George Madison, with respect to his personal investment portfolio. Mr. Madison is a vice-president of a large manufacturing corporation and is a resident of your city. He is acquainted with Andrew Monroe, the President of Campbell Corporation and Lyndon Adams, the President of Edwards Corporation. Mr. Madison confronts you with an annual report for each of these companies and asks you to compare them as investment alternatives. Mr. Madison is 32 years old, single, and in excellent health. His salary provides more than enough income for his present needs. He has $50,000 in cash which he desires to invest in common stocks, preferably stocks which appear likely to have substantial price growth over the next five to ten years.

*QUESTIONS*

1. If Mr. Madison wants to allocate $30,000 between these two investment alternatives, what proportions would you recommend for each common stock offering?

| | |
|---|---|
| Campbell Corporation | _____ % |
| Edwards Corporation | _____ % |
| Total | 100 % |

2. Given only the information provided to you, what value or price per share would you place on the common stock of these two companies at their annual report dates?

| | |
|---|---|
| Campbell Corporation | $ _____ per share |
| Edwards Corporation | $ _____ per share |

3. Do you consider an investment in Campbell Corporation stock to be:

_____ a. extremely risky
_____ b. risky
_____ c. marginal
_____ d. safe
_____ e. extremely safe

4. Do you consider an investment in Edwards Corporation stock to be:

_____ a. extremely risky
_____ b. risky
_____ c. marginal
_____ d. safe
_____ e. extremely safe



(SEE OTHER SIDE)

5. Which company will experience more growth over the next five years?

_____ a. Campbell Corporation
_____ b. Edwards Corporation
_____ c. equal growth
_____ d. no opinion

6. Please state the reasons for your answers to the first five questions. Feel free to use more space if needed.

_____

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7. Do you consider yourself to be a specialist in the software industry?

_____ a. yes
_____ b. no

*OPTIONAL INFORMATION*

8. Would you be willing to participate in a confidential telephone interview?

_____ a. yes
_____ b. no

If yes, please indicate your name and telephone number

_____

_____

9. If you would like to receive a summary of the research findings, please indicate where the findings should be sent.

_____

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_____

5. Which company will experience more growth over the next five years?

_____ a. Campbell Corporation
_____ b. Edwards Corporation
_____ c. equal growth
_____ d. no opinion

6. Please state the reasons for your answers to the first five questions. Feel free to use more space if needed.

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7. Do you consider yourself to be a specialist in the software industry?

_____ a. yes
_____ b. no

*OPTIONAL INFORMATION*

8. Would you be willing to participate in a confidential telephone interview?

_____ a. yes
_____ b. no

If yes, please indicate your name and telephone number

_____

_____

9. If you would like to receive a summary of the research findings, please indicate where the findings should be sent.

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**NATIONAL ASSOCIATION OF ACCOUNTANTS**
**919 Third Avenue**
**New York, N.Y. 10022**
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# STOCK INVESTMENT

Instructions: Please fill in the blanks or place an "X" in the space provided.

*BACKGROUND*

The two fictitious companies to be compared in this study are Campbell Corporation and Edwards Corporation. The setting of the study is as follows: Suppose you are to consult an individual investor, named George Madison, with respect to his personal investment portfolio. Mr. Madison is a vice-president of a large manufacturing corporation and is a resident of your city. He is acquainted with Andrew Monroe, the President of Campbell Corporation and Lyndon Adams, the President of Edwards Corporation. Mr. Madison confronts you with an annual report for each of these companies and asks you to compare them as investment alternatives. Mr. Madison is 32 years old, single, and in excellent health. His salary provides more than enough income for his present needs. He has $50,000 in cash which he desires to invest in common stocks, preferably stocks which appear likely to have substantial price growth over the next five to ten years.

*QUESTIONS*

1. If Mr. Madison wants to allocate $30,000 between these two investment alternatives, what proportions would you recommend for each common stock offering?

| | |
|---|---|
| Campbell Corporation | _____ % |
| Edwards Corporation | _____ % |
| Total | 100 % |

2. Given only the information provided to you, what value or price per share would you place on the common stock of these two companies at their annual report dates?

| | |
|---|---|
| Campbell Corporation | $ _____ per share |
| Edwards Corporation | $ _____ per share |

3. Do you consider an investment in Campbell Corporation stock to be:

_____ a. extremely risky
_____ b. risky
_____ c. marginal
_____ d. safe
_____ e. extremely safe

4. Do you consider an investment in Edwards Corporation stock to be:

_____ a. extremely risky
_____ b. risky
_____ c. marginal
_____ d. safe
_____ e. extremely safe

(SEE OTHER SIDE)

# APPENDIX K

## FINANCIAL INFORMATION

## CAMPBELL AND EDWARDS CORPORATION

## FINANCIAL RATIOS

| | CAMPBELL | | EDWARDS | |
|---|---|---|---|---|
| | 1983 | 1982 | 1983 | 1982 |
| **Short-Term Liquidity Ratios** | | | | |
| 1. Current Ratio | 2.2:1 | 2.7:1 | 2.2:1 | 2.7:1 |
| 2. Quick (Acid Test) Ratio | 2.1:1 | 2.6:1 | 2.1:1 | 2.6:1 |
| 3. Cash Equivalents and Marketable Securities/ Current Liabilities | 0.8:1 | 1.3:1 | 0.8:1 | 1.3:1 |
| 4. Working Capital/Total Assets | 0.20:1 | 0.36:1 | 0.25:1 | 0.46:1 |
| **Long-Term Solvency Ratios** | | | | |
| 5. Net Worth/Long Term Debt | 0.90:1 | 12.88:1 | 0.54:1 | 10.44:1 |
| 6. Total Debt/Net Worth | 1.58:1 | 0.40:1 | 2.65:1 | 0.49:1 |
| 7. Net Worth/Fixed Assets | 0.99:1 | 3.25:1 | 0.59:1 | 2.63:1 |
| 8. Total Debt/Total Assets | 0.57:1 | 0.26:1 | 0.73:1 | 0.33:1 |
| **Turnover (Activity) Ratios** | | | | |
| 9. Sales/Cash and Marketable Securities | 3.31:1 | 2.47:1 | 3.31:1 | 2.47:1 |
| 10. Sales/Accounts Receivable | 2.27:1 | 2.67:1 | 2.27:1 | 2.67:1 |
| 11. Sales/Working Capital | 2.36:1 | 1.89:1 | 2.36:1 | 1.89:1 |
| 12. Sales/Total Assets | 0.47:1 | 0.68:1 | 0.60:1 | 0.87:1 |
| 13. Sales/Net Worth | 1.30:1 | 1.06:1 | 2.18:1 | 1.30:1 |
| **Profitability Ratios** | | | | |
| 14. Operating Income/Sales | 0.14:1 | 0.15:1 | (0.09):1 | (0.01):1 |
| 15. Net Income/Sales | 0.10:1 | 0.13:1 | (0.08):1 | 0.03:1 |
| 16. Operating Income/Total Assets | 0.07:1 | 0.10:1 | (0.05):1 | (0.01):1 |
| 17. Operating Income/Net Worth | 0.18:1 | 0.16:1 | (0.20):1 | (0.01):1 |

(OVER)

| | CAMPBELL | | EDWARDS | |
|---|---|---|---|---|
| | 1983 | 1982 | 1983 | 1982 |
| Investor Ratios | | | | |
| 18. Percentage of Earnings Retained | 100% | 100% | 100% | 100% |
| 19. Earnings (Loss) Per Share | $0.76 | $0.71 | $(0.63) | $0.16 |
| 20. Fully Diluted Earnings (Loss) Per Share | $0.76 | $0.71 | $(0.63) | $0.16 |
| 21. Earnings Before Interest and Tax/Earnings Before Tax | 1.28:1 | 1.03:1 | 0.52:1 | 1.15:1 |
| 22. Dividend Payout | 0 | 0 | 0 | 0 |
| 23. Dividend Yield | 0 | 0 | 0 | 0 |
| 24. Book Value Per Share | $5.95 | $5.18 | $3.54 | $4.20 |

CAMPBELL CORPORATION

ACCOUNTS RECEIVABLE AGING SCHEDULE - 1983

| Trade accounts receivable | Collectible | Doubtful |
|---|---|---|
| Not past due | $4,968,776 | $ 99,375 |
| 1-30 days past due | 851,790 | 42,590 |
| 31-60 days past due | 709,825 | 70,983 |
| More than 60 days past due | 567,861 | 240,052 |
| | $7,098,252 | $453,000 |

Unbilled accounts receivable

Unbilled accounts receivable amount to $3,925,395 as of December 31, 1983. Based on past experience, it is estimated that, once billed, approximately 6 percent of these receivables, or $235,524, will be uncollectible.

FIVE YEAR PROJECTIONS

It is anticipated that the company will continue to experience rapid growth over the next five years, and will earn substantial net income in each of the next five years.



(See Other Side)

EDWARDS CORPORATION

ACCOUNTS RECEIVABLE AGING SCHEDULE - 1983

| Trade accounts receivable | Collectible | Doubtful |
|---|---|---|
| Not past due | $4,968,776 | $ 99,375 |
| 1-30 days past due | 851,790 | 42,590 |
| 31-60 days past due | 709,825 | 70,983 |
| More than 60 days past due | 567,861 | 240,052 |
| | $7,098,252 | $453,000 |

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Unbilled accounts receivable amount to $3,925,395 as of December 31, 1983. Based on past experience, it is estimated that, once billed, approximately 6 percent of these receivables, or $235,524, will be uncollectible.

FIVE YEAR PROJECTIONS

It is anticipated that the company will continue to experience rapid growth over the next five years, and will earn substantial net income in each of the next five years.



(See Other Side)

CAMPBELL CORPORATION

Financial Information

## General Description

The Company and its subsidiaries (the "Company") offers a variety of products and services designed to satisfy the information and control requirements of its customers' manufacturing operations. The Company's software products business has grown to represent the major source of revenue for the Company. The Company also provides educational, training, and implementation support services to its customers to enable them to use its software products more effectively. The Company is a Delaware corporation organized in 1968.

The following table shows the Company's annual revenue and the percentage of annual revenue derived from proprietary software products and related products and services during the past five years. Revenue from proprietary software products has grown significantly since 1978 and represents approximately two-thirds of total revenue in 1982. Educational products and services revenue has increased most significantly the past two years, from 4% of revenue in 1980 to 13% of revenue in 1982. Professional services revenue has decreased slightly as a percentage of revenue during the past five years; processing services revenue has decreased as a percentage of revenue during the past five years.

| | Revenue | | | | | % of Total | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1982 | 1981 | 1980 | 1979 | 1978 | 1982 | 1981 | 1980 | 1979 | 1978 |
| Revenue Source | | | | | | | | | | |
| Proprietary software products..... | $16,664 | $11,928 | $ 6,839 | $ 3,325 | $ 1,896 | 66% | 68% | 64% | 51% | 45% |
| Related products and services: | | | | | | | | | | |
| Educational..... | 3,319 | 1,134 | 417 | 134 | --- | 13 | 6 | 4 | 2 | --- |
| Professional..... | 2,905 | 2,498 | 1,619 | 1,112 | 656 | 12 | 14 | 15 | 17 | 15 |
| Processing..... | 2,187 | 2,107 | 1,829 | 1,922 | 1,705 | 9 | 12 | 17 | 30 | 40 |
| Total | $25,075 | $17,667 | $10,704 | $ 6,493 | $ 4,257 | 100% | 100% | 100% | 100% | 100% |

**CAMPBELL CORPORATION AND SUBSIDIARIES**
**CONSOLIDATED STATEMENTS OF OPERATIONS**

| Year ended December 31 | 1982 | 1981 | 1980 |
|---|---|---|---|
| Revenues | $25,075,499 | $17,667,477 | $10,703,503 |
| Costs and expenses: | | | |
| Operating costs | 7,011,258 | 5,727,232 | 3,526,699 |
| Selling expenses | 8,102,694 | 5,635,140 | 3,623,340 |
| General and administrative expenses | 4,423,141 | 2,698,992 | 1,257,151 |
| Amortization of computer software and educational courseware construction costs | 1,742,932 | 719,882 | 469,593 |
| Provision for doubtful accounts | 291,000 | 185,000 | 165,451 |
| Total costs and expenses | 21,571,025 | 14,966,246 | 9,042,234 |
| Operating income | 3,504,474 | 2,701,231 | 1,661,269 |
| Other income (expense): | | | |
| Interest income | 1,219,127 | 1,052,093 | 72,870 |
| Interest expense (Note 1) | (1,008,519) | (125,170) | (172,008) |
| Miscellaneous | (68,975) | --- | (121,000) |
| Total other income (expense), net | 141,633 | 926,923 | (220,138) |
| Income before income taxes | 3,646,107 | 3,628,154 | 1,441,131 |
| Income taxes | 1,094,000 | 1,415,000 | 538,000 |
| Net income | $ 2,552,107 | $ 2,213,154 | $ 903,131 |
| Earnings per common share and common stock equivalent (Note 1) | $ .76 | $ .71 | $ .45 |
| Weighted average number of common shares and common stock equivalents outstanding | 3,346,457 | 3,117,237 | 1,988,772 |
| Earnings per common share assuming full dilution (Note 1) | $ .76 | $ .71 | $ .42 |
| Weighted average number of common shares and common stock equivalents outstanding assuming full dilution | 4,024,481 | 3,126,025 | 2,178,638 |

See accompanying notes to consolidated financial statements

**CAMPBELL CORPORATION AND SUBSIDIARIES**
**CONSOLIDATED BALANCE SHEETS**

| ASSETS — December 31 | 1982 | 1981 |
|---|---|---|
| Current assets: | | |
| Cash, including time deposits | $ 7,578,434 | $ 6,836,350 |
| Short-term investments, at cost (approximates market) | --- | 308,000 |
| Trade accounts receivable, less allowance for doubtful accounts of $453,000 and $320,000, respectively | 7,098,252 | 4,142,179 |
| Unbilled accounts receivable (Note 2) | 3,925,395 | 2,482,581 |
| Interest receivable | 294,576 | 464,464 |
| Prepaid expenses and other current assets | 729,275 | 520,484 |
| Total current assets | 19,625,932 | 14,754,058 |
| Computer software and educational courseware construction costs (Note 1) | 15,282,654 | 7,790,838 |
| Less accumulated amortization | 3,936,550 | 2,193,618 |
| | 11,346,104 | 5,597,220 |
| Property and equipment, at cost (Note 1): | | |
| Computer equipment | 8,243,492 | 4,409,037 |
| Office furniture, fixtures, and equipment | 2,231,144 | 1,408,703 |
| Leasehold improvements | 697,809 | 614,031 |
| | 11,172,445 | 6,431,771 |
| Less accumulated depreciation and amortization | 2,726,274 | 1,356,744 |
| | 8,446,171 | 5,075,027 |
| Construction in progress (Note 3) | 11,112,064 | 72,496 |
| | 19,558,235 | 5,147,523 |
| Other long-term assets (Note 4) | 2,772,500 | 371,264 |
| | $53,302,771 | $25,870,065 |

See accompanying notes to consolidated financial statements.

**CAMPBELL CORPORATION AND SUBSIDIARIES**
**CONSOLIDATED BALANCE SHEETS**

| LIABILITIES AND COMMON STOCKHOLDERS' EQUITY — December 31 | 1982 | 1981 |
|---|---|---|
| Current liabilities: | | |
| Current portion of long-term debt | $ 456,988 | $ 339,527 |
| Accounts payable | 3,373,016 | 1,879,591 |
| Income taxes payable | 12,000 | 81,000 |
| Accrued liabilities (Note 5) | 2,026,310 | 1,805,355 |
| Deferred revenue, principally advance payments | 3,143,218 | 1,300,731 |
| Total current liabilities | 9,011,532 | 5,406,204 |
| Deferred income taxes | 3,526,000 | 2,444,800 |
| Long-term debt (Note 7) | 21,439,687 | 1,298,290 |
| Common stockholders' equity (Notes 7, 8 and 9): | | |
| Common stock, $.10 par value. Authorized 10,000,000 shares; issued 3,264,349 shares and 3,240,233 shares at December 31, 1982 and December 31, 1981 | 326,435 | 324,023 |
| Additional paid-in capital | 12,888,595 | 13,029,788 |
| Retained earnings | 6,438,391 | 3,886,284 |
| | 19,653,421 | 17,240,095 |
| Less: Unearned compensation | 317,442 | 508,897 |
| Cost of 15,000 common shares held in treasury | 10,427 | 10,427 |
| Total common stockholders' equity | 19,325,552 | 16,720,771 |
| Commitments (Note 10) | | |
| | $53,302,771 | $25,870,065 |

See accompanying notes to consolidated financial statements.

## 1. SUMMARY OF ACCOUNTING POLICIES

**Principles of Consolidation:**

The consolidated financial statements include the accounts of the parent company and its wholly owned subsidiaries, after elimination of significant intercompany accounts and transactions.

**Revenue Recognition:**

At the time of entering into licensing agreements for the use of proprietary software, the Company recognizes the lesser of one-half of the revenue or the nonrefundable portion of the agreement price paid by the customer at that time. The remainder of the agreement price is recognized as revenue upon effective delivery of the software. Revenue related to other services is recognized as the services are performed.

**Computer Software and Educational Courseware Construction Costs:**

The Company owns various proprietary computer software products that it licenses to customers and operates in its computer services facility. Certain costs related to the enhancement, improvement, and adaptation to particular requirements of the Company's existing proprietary software are capitalized and are being amortized primarily on a straight-line basis over the estimated period of benefit, which is generally six years for software designed to operate on IBM-compatible mainframe computer equipment, and four years for all other software. The costs of purchased software are capitalized and amortized on the same basis. The costs incurred in the search for or evaluation of product or process alternatives or in the design of pre-production models or in conceptual formulation or translation of knowledge into designs for new or significantly improved software products are charged to research and development expense as incurred. Costs related to software deemed to have an impaired future value are written off immediately or amortized over the remaining estimated period of benefit once this becomes apparent. Net software construction costs amounted to $9,634,616 and $5,060,840 at December 31, 1982 and 1981, respectively.

The Company designs and constructs educational courseware that aids customers in effectively utilizing the Company's software products. These courseware construction costs are capitalized and are being amortized over the estimated period of benefit, which is four years. Net educational courseware construction costs amounted to $1,711,488 and $536,380 at December 31, 1982 and 1981, respectively.

**Income Taxes:**

Provisions for Federal and state income taxes include deferred income taxes representing the tax effects of timing differences between taxable and financial statement income. The principal timing difference relates to accounting for software and educational courseware construction costs. Income taxes have not been provided for on the undistributed earnings of the Company's Domestic International Sales Corporation (DISC), since it is the Company's intent to reinvest such earnings indefinitely.

Investment tax credits are recognized as a reduction of income tax expense in the year the assets are placed in service. Research and development tax credits are recognized as a reduction of income tax expense in the year eligible costs are incurred.

**Property and Equipment:**

Property and equipment are carried at cost. Certain items of equipment acquired under capital lease agreements, which are essentially financing arrangements, have been capitalized and are reflected in the accompanying consolidated balance sheets as assets under property and equipment and as related obligations under long-term debt.

Depreciation of computer equipment, and furniture, fixtures, and equipment, including assets under capital leases, is computed on the straight-line method based on estimated useful lives of five or eight years. Prior to 1981 all property and equipment was being depreciated over eight years. After 1980, computer equipment has been depreciated over five years to more accurately reflect its economic life. The effect of this change is not material to the financial statements. Leasehold improvements are amortized over the useful lives of the assets or the terms of the leases, whichever is less.

**Deferred Debenture Costs:**

Costs incurred in connection with the Company's sale of $20,000,000 of 11% convertible subordinated debentures in July 1982 are included in Other Long-Term Assets on the Company's balance sheet (see Note 4). These costs are being amortized on a straight-line basis over the 20-year term of the debentures.

**Deferred Processing Acquisition Costs:**

Costs incurred to acquire two small processing service businesses are included in Other Long-Term Assets on the Company's balance sheet (see Note 4). These costs are being amortized on a straight-line basis over the life of the processing contracts, which is 60 and 87 months, respectively.

**Capitalization of Interest Costs:**

In 1982, the Company applied Statement of Financial Accounting Standards No. 34, Capitalization of Interest Costs, to its accounting for construction in progress on its new headquarters building. This statement requires that interest costs related to certain long-term construction projects be capitalized rather than charged directly to expense. Accordingly, of total interest costs of $1,478,842 incurred in 1982, $470,323 was capitalized. There were no significant construction projects that would have required interest to be capitalized in 1981 or 1980.

**Earnings Per Common Share:**

Earnings per common share and common stock equivalent is computed by dividing net income (less dividends on preferred stock in 1980) by the weighted average number of common shares and common stock equivalents (stock options and warrant) outstanding during each period.

Earnings per common share assuming full dilution is computed by dividing net income (after adjusting for non-capitalized interest on debentures, net of tax, for 1980 and 1982) by the weighted average number of common shares and common stock equivalents. For 1980, weighted shares included common shares applicable to the 10% convertible subordinated debentures and preferred stock, which were converted in 1980 (see Note 7). For 1982, weighted shares included common shares applicable to the 11% convertible subordinated debentures issued in July 1982 (see Note 7).

**Translation of Foreign Currencies:**

Effective January 1, 1982, the Company adopted the provisions of Statement of Financial Accounting Standrds No. 52, Foreign Currency Translation. In accordance with this statement, the U.S. dollar has been selected as the functional currency for all foreign subsidiaries and, accordingly, foreign currency translation adjustments and foreign currency transaction gains and losses, which were immaterial in amount during 1982, are reflected in income.

The balance sheet accounts denominated in foreign currencies have been translated at current exchange rates for monetary items and at historical rates for all other items. Income and expense accounts have been translated at weighted average rates prevailing during the year, except for those accounts which related to assets and liabilities translated at historical rates.

**Reclassifications:**

Certain amounts relating to 1980 and 1981 have been reclassified to conform to the 1982 presentation.

## 2. UNBILLED ACCOUNTS RECEIVABLE

Unbilled accounts receivable consist primarily of customer accounts for which software product revenue has been earned and recognized in the financial statements but which have yet to be billed to customers. These accounts are payable in installments by customers within one year. Upon invoicing to customers, unbilled accounts receivable are classified as trade accounts receivable.

## 3. CONSTRUCTION IN PROGRESS

In February 1982, the Company exercised options to purchase 81 acres of land in Anytown, USA, for $2,030,000, upon which its new corporate headquarters is being built. The total estimated cost of the project is approximately $14,000,000. The Company will move to the new facility in April 1983. Financing for the construction was provided by the 11% convertible subordinated debentures issued July 1982 (see Note 7).

## 4. OTHER LONG-TERM ASSETS

Other long-term assets at December 31, 1982 and 1981 consist of the following:

| Year ended December 31 | 1982 | 1981 |
|---|---|---|
| Long-term unbilled accounts receivable | $ 1,500,000 | $ --- |
| Deferred debenture costs, net (Note 1) | 886,038 | --- |
| Deferred processing acquisition costs, net (Note 1) | 386,462 | 371,264 |
| | $ 2,772,500 | $ 371,264 |

Long-term unbilled accounts receivable consist primarily of customer accounts for which software product revenue has been earned and recognized in the financial statements but which have yet to be billed to customers. These accounts are payable in installments by customers with terms extending beyond one year. Only the portion of customers' payments that extend beyond one year are classified as long-term assets (Note 2).

## 5. ACCRUED LIABILITIES

Accrued liabilities consist of:

| Year ended December 31 | 1982 | 1981 |
|---|---|---|
| Accrued commissions | $ 488,355 | $ 640,257 |
| Accrued bonuses | 647,264 | 573,912 |
| Accrued vacation | 404,537 | 265,193 |
| Accrued salaries | 488,429 | 291,309 |
| Other | (2,275) | 34,684 |
| | $ 2,026,310 | $ 1,805,355 |

## 6. LINE OF CREDIT

At December 31, 1982 and 1981, the Company had a bank commitment for a $6,000,000 revolving line of credit available through December 31, 1983, all of which was unused at December 31, 1982 and 1981. A compensating balance of one and one-half percent of the commitment is required by the bank. The annual interest rate is one-half of one percent above the bank's prime rate, plus a

commitment fee of one-eighth of one percent per year on the full amount of the commitment. The outstanding balance at December 31, 1983, if any, will convert to a term loan with interest based on the prime rate at that date, maturing in monthly installments to December 31, 1986. The line of credit is unsecured.

## 7. LONG-TERM DEBT AND REDEEMABLE PREFERRED STOCK

Long term debt at December 31, 1982 and 1981 is summarized as follows:

| Year ended December 31 | 1982 | 1981 |
|---|---|---|
| 11% convertible subordinated debentures due July 1, 2002..... | $20,000,000 | $ --- |
| 12.3%-21.4% capital lease obligations payable in monthly installments to March 1987..... | 1,466,675 | 1,630,344 |
| 10.0%-16.1% equipment contracts payable in monthly installments to April 1987..... | 430,000 | 7,473 |
| Less current portion..... | (456,988) | (339,527) |
| | $21,439,687 | $ 1,298,290 |

On July 9, 1982, the Company issued $20,000,000 of 11% convertible subordinated debentures due July 1, 2002, with interest payable January 1 and July 1.

The debentures are convertible into shares of common stock of the Company at a conversion price of $14.50 per share (equivalent to a conversion rate of approximately 68.97 shares of common stock for each $1,000 principal amount of the debentures), subject to certain adjustments.

The debentures are redeemable at any time on no less than 30 days notice at the option of the Company, in whole or in part, at redemption prices declining from 111.0% of the principal amount initially to 100% of the principal amount on and after July 1, 1992, together with accrued interest. However, prior to July 1, 1984, the debentures may not be redeemed unless, for a period of 30 consecutive trading days immediately preceding the date of the notice of redemption, the closing bid price for the Company's common stock has averaged at least 150% (or $21.75 per share) of the conversion price of the debentures. Annual sinking fund pay-

ments of $1,500,000, commencing on July 1, 1992, are calculated to retire 75% of the issue prior to maturity.

Aggregate minimum annual payments due on long-term debt, including capital leases, at December 31, 1982 are as follows: $1983, $456,988; 1984, $469,434; 1985, $478,588; 1986, $394,373; 1987, $97,295; and thereafter, $-0-.

Future minimum lease payments under capital leases together with the present value of the net minimum lease payments as of December 31, 1982, are summarized as follows:

| December 31 | 1982 |
|---|---|
| 1983 | $ 563,176 |
| 1984 | 523,278 |
| 1985 | 479,257 |
| 1986 | 332,069 |
| 1987 | 11,526 |
| Total minimum lease payments | 1,909,306 |
| Amount representing interest | (442,631) |
| Present value of net minimum lease payments | $ 1,466,675 |

Equipment under capitalized leases, with costs approximately $2,628,000 and $2,415,000 and accumulated depreciation approximating $751,000 and $276,000 at December 31, 1982 and 1981, respectively, is included in property and equipment.

**Redeemable Preferred Stock:**

On July 23, 1980, the Company completed the public sale of an additional 660,000 shares of common stock at $5.00 per share, which resulted in the automatic conversion of the Company's 10% subordinated convertible debentures and 8% cumulative convertible preferred stock into 300,000 shares of common stock.

## 8. COMMON STOCK

On March 27, 1981, the Board of Directors declared a three-for-two stock split effected in the form of a 50% stock dividend, paid on June 1, 1981, to holders of record of common shares on May 25, 1981. As a result, a transfer of $107,741 was made from

retained earnings to common stock for the par value of shares issued. All share, price per share, and stock option data appearing in the consolidated financial statements and notes thereto has been adjusted retroactively, as of December 31, 1981, to reflect the stock dividend.

## 9. STOCK OPTIONS, RESTRICTED STOCK AGREEMENTS, AND WARRANT

Stock Options:

The Company has options outstanding under three stock option plans as of December 31, 1982. The Qualified Stock Option Plan expired on January 17, 1979; options granted under this plan continue to be exercisable until December 8, 1983. Option prices could not be less than 100% of fair market value on the date of grant. Options granted are exercisable in four annual and cumulative installments beginning one year from the date of grant and expire five years from the date of grant.

Under the General Stock Option Plan, option prices could not be less than 100% of fair market value on the date of grant and the options granted are exercisable immediately and expire five years from the date of grant. The General Stock Option Plan was terminated in 1979; options granted under the Plan continue to be exercisable until November 15, 1983.

The 1979 General Stock Option Plan originally provided that option prices may not be less than 85% of fair market value on the date of grant, that options granted become exercisable in four annual and cumulative installments beginning one year from date of grant, and that the options expire ten years from the date of grant. The Plan was amended at the May 12, 1983 Annual Shareholders' Meeting to allow for the granting of incentive stock options as provided in the Economic Recovery Tax Act of 1981. Outstanding stock options under the Plan were converted to incentive stock options. The 1979 General Stock Option Plan, as amended, provides that option prices may not be less than 100% of fair market value on the date of the grant, and that options granted become exercisable in three annual and cumulative installments beginning one year from the date of grant. Options must be fully exercised in the order in which they were granted before subsequent options may be exercised, and expire ten years from the date of grant. On the date the options are exercised, the excess of the proceeds received over the par value of the shares is credited to additional paid-in capital for all plans. No amounts are charged to income with respect to the stock option transactions under these plans.

| | Available for Grant | Options Outstanding | | Options Currently Exercisable |
|---|---|---|---|---|
| | Shares | Shares | Price per Share | Shares |
| Balance at December 31, 1980..... | 63,649 | 149,125 | $ .67 to $11.33 | 62,043 |
| Options granted..... | (16,720) | 16,720 | | |
| Options exercised..... | | (45,920) | $ .67 to $ 4.58 | |
| Options terminated.... | 4,875 | (4,875) | | |
| Balance at December 31, 1981..... | 51,804 | 115,050 | $ .67 to $15.88 | 52,893 |
| Options authorized.... | 100,000 | | | |
| Options granted..... | (147,318) | 147,318 | | |
| Options exercised..... | | 17,448 | $ .67 to $11.75 | |
| Options terminated.... | 5,675 | (5,675) | | |
| Balance at December 31, 1982..... | 10,161 | 239,245 | $1.67 to $18.25 | 58,816 |

During 1980, options for 49,350 shares were exercised at prices ranging from $.67 to $3.75 per share.

**Restricted Stock Agreements:**

The Restricted Stock Plan was terminated in 1982; shares will no longer be issued under that Plan. The terms of the Plan, however, remain in effect for those shares previously issued.

The Company's Restricted Stock Plan reserved common stock for issuance to officers and employees at the discretion of the Board of Directors. The Company has also sold restricted stock to officers of the Company at $1.00 per share. The rights to restricted shares vest with respect to one-third of the shares in each of the third, fourth and fifth years of service after issue. The difference between the purchase price, if any, and the fair market value of the common stock at the date on which the number of shares are determined and become issuable is considered to be compensation. This amount is charged to expense over the periods of the restriction including the year of the grant. At December 31, 1982, there were no restricted common shares issuable related to 1982 grants.

During 1981 and 1980, 61,575 and 53,136 restricted shares were issued with an aggregate market value at the date they were issuable of $723,506 and $232,863, respectively. Participants

eligible to receive restricted stock in 1982 were given an opportunity to elect incentive stock options under the terms of the 1979 General Stock Option Plan, as amended. The formula converting the restricted stock awards to incentive stock options was 1.42 shares for each allocated share of restricted stock, plus a cash bonus of $2.00 per allocated share of restricted stock. During 1982, 413 restricted shares with an aggregate market value of $6,298 were issued. Consideration received from participants in the Restricted Stock Plan in 1980 was $68,349. No consideration was received in 1981 or 1982.

**Warrant**

In 1980, the Company issued a warrant to purchase 30,000 shares of common stock in connection with a public offering of its common stock. The initial exercise price was $5.50 per share, subject to annual increases of $.50 per share. The exercise period was four years, from July 23, 1981 through July 22, 1985. In June 1982, the Company reacquired the warrant for $202,000.

## 10. COMMITMENTS

Aggregate minimum annual rentals due under long-term noncancellable operating leases of property and equipment, exclusive of capital leases (see Note 7), are as follows at December 31, 1982: 1983, $708,000; 1984, $390,000; 1985, $65,000; 1986, $19,000; 1987, $19,000.

Rent expense, exclusive of capital leases, for the years ended December 31, 1982, 1981 and 1980 was $1,275,304, $684,163 and $400,000, respectively.

In January 1983, the Company exercised an option to purchase its existing corporate headquarters facility and the adjoining land in Anytown, USA, for $1,330,000. As of December 31, 1982, the facility was under an operating lease, with payments totaling $280,000 through December 31, 1984.

## 11. COMPANY BUSINESS

Industry Segment:

For each of the last five years, the Company's business has been in a single industry segment, computer services -- the design, construction, and marketing of computer software, educational courseware, and related services. Therefore, all of the revenue, operating profit, and assets of the Company are attributable to that industry segment.

International Operations:

The Company is engaged in one industry segment, both domestically and worldwide.

Sales and marketing operations outside the United States are conducted principally through a sales subsidiary in the United Kingdom, by direct export sales from the parent corporation, and through various representative and distributorship arrangements.

The Company's international operations include a facility in Ireland that provides software products to the international sales subsidiary. A portion of international sales consists of software contracted domestically, and either sold to the international sales subsidiary or to the client directly as an export sale.

Intercompany transfers (sales) between geographic areas are accounted for at prices which generally approximate the prices of similar transactions with unaffiliated parties.

The retained earnings of all the Company's international subsidiaries have been reinvested to support their operations.

Revenues by geographic area are summarized as follows:

| Revenue | |
|---|---|
| Sales to Unaffiliated Customers: | |
| United States | $21,897,334 |
| Europe | 2,523,683 |
| Other foreign | 654,482 |
| Total Sales to Unaffiliated Customers | 25,075,499 |
| Intercompany Sales between Geographic Areas to: | |
| United States | 63,818 |
| Europe | 1,407,643 |
| Total Sales between Geographic Areas | 1,471,461 |
| Intercompany Eliminations | (1,471,461) |
| Revenue | $25,075,499 (1) |

Revenues attributable to geographic areas other than the United States were immaterial in 1980 and 1981.

(1) Includes export sales to customers of $1,322,143.

## 12. RESEARCH AND DEVELOPMENT EXPENSE

Research and development expense amounted to $123,101, $6,068, and $-0- in 1982, 1981, and 1980, respectively.

## REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

The Board of Directors and Shareholders
Campbell Corporation:

We have examined the consolidated balance sheets of Campbell Corporation and subsidiaries as of December 31, 1982 and 1981 and the related consolidated statements of operations, common stockholders' equity, and changes in financial position for each of the years in the three-year period ended December 31, 1982. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the aforementioned consolidated financial statements present fairly the financial position of Campbell Corporation and subsidiaries at December 31, 1982 and 1981 and the results of their operations and the changes in financial position for each of the years in the three year period ended December 31, 1982, in conformity with generally accepted accounting principles applied on a consistent basis.

PEAT, MARWICK, MITCHELL & CO.

Anytown, USA
March 23, 1983

EDWARDS CORPORATION

Financial Information

## General Description

The Company and its subsidiaries (the "Company") offers a variety of products and services designed to satisfy the information and control requirements of its customers' manufacturing operations. The Company's software products business has grown to represent the major source of revenue for the Company. The Company also provides educational, training, and implementation support services to its customers to enable them to use its software products more effectively. The Company is a Delaware corporation organized in 1968.

The following table shows the Company's annual revenue and the percentage of annual revenue derived from proprietary software products and related products and services during the past five years. Revenue from proprietary software products has grown significantly since 1978 and represents approximately two-thirds of total revenue in 1982. Educational products and services revenue has increased most significantly the past two years, from 4% of revenue in 1980 to 13% of revenue in 1982. Professional services revenue has decreased slightly as a percentage of revenue during the past five years; processing services revenue has decreased as a percentage of revenue during the past five years.

| | Revenue | | | | | % of Total | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1982 | 1981 | 1980 | 1979 | 1978 | 1982 | 1981 | 1980 | 1979 | 1978 |
| Revenue Source | | | | | | | | | | |
| Proprietary software products | $16,664 | $11,928 | $ 6,839 | $ 3,325 | $ 1,896 | 66% | 68% | 64% | 51% | 45% |
| Related products and services: | | | | | | | | | | |
| Educational | 3,319 | 1,134 | 417 | 134 | --- | 13 | 6 | 4 | 2 | --- |
| Professional | 2,905 | 2,498 | 1,619 | 1,112 | 656 | 12 | 14 | 15 | 17 | 15 |
| Processing | 2,187 | 2,107 | 1,829 | 1,922 | 1,705 | 9 | 12 | 17 | 30 | 40 |
| Total | $25,075 | $17,667 | $10,704 | $ 6,493 | $ 4,257 | 100% | 100% | 100% | 100% | 100% |

**EDWARDS CORPORATION AND SUBSIDIARIES**
**CONSOLIDATED STATEMENTS OF OPERATIONS**

| Year ended December 31 | 1982 | 1981 | 1980 |
|---|---|---|---|
| Revenues | $25,075,499 | $17,667,477 | $10,703,503 |
| Costs and expenses: | | | |
| Operating costs | 14,503,297 | 9,258,867 | 4,957,116 |
| Selling expenses | 8,102,694 | 5,635,140 | 3,623,340 |
| General and administrative expenses | 4,423,141 | 2,698,992 | 1,257,151 |
| Provision for doubtful accounts | 291,000 | 185,000 | 165,451 |
| Total costs and expenses | 27,320,132 | 17,777,999 | 10,003,058 |
| Operating income (loss) | (2,244,633) | (110,522) | 700,445 |
| Other income (expense): | | | |
| Interest income | 1,219,127 | 1,052,093 | 72,870 |
| Interest expense (Note 1) | (1,008,519) | (125,170) | (172,008) |
| Miscellaneous | (68,975) | --- | (121,000) |
| Total other income (expense), net | 141,633 | 926,923 | (220,138) |
| Income before income taxes | (2,103,000) | 816,401 | 480,307 |
| Income taxes | --- | 318,401 | 179,307 |
| Net income (loss) | $(2,103,000) | $ 498,000 | $ 301,000 |
| Earnings (loss) per common share and common stock equivalent (Note 1) | $ (.63) | $ .16 | $ .15 |
| Weighted average number of common shares and common stock equivalents outstanding | 3,346,457 | 3,117,237 | 1,988,772 |
| Earnings (loss) per common share assuming full dilution (Note 1) | $ (.63) | $ .16 | $ .14 |
| Weighted average number of common shares and common stock equivalents outstanding assuming full dilution | 4,024,481 | 3,126,025 | 2,178,638 |

See accompanying notes to consolidated financial statements

**EDWARDS CORPORATION AND SUBSIDIARIES**
**CONSOLIDATED BALANCE SHEETS**

| ASSETS — December 31 | 1982 | 1981 |
|---|---|---|
| Current assets: | | |
| Cash, including time deposits | $ 7,578,434 | $ 6,836,350 |
| Short-term investments, at cost (approximates market) | --- | 308,000 |
| Trade accounts receivable, less allowance for doubtful accounts of $453,000 and $320,000, respectively | 7,098,252 | 4,142,179 |
| Unbilled accounts receivable (Note 2) | 3,925,395 | 2,482,581 |
| Interest receivable | 294,576 | 464,464 |
| Prepaid expenses and other current assets | 729,275 | 520,484 |
| Total current assets | 19,625,932 | 14,754,058 |
| Property and equipment, at cost (Note 1): | | |
| Computer equipment | 8,243,492 | 4,409,037 |
| Office furniture, fixtures, and equipment | 2,231,144 | 1,408,703 |
| Leasehold improvements | 697,809 | 614,031 |
| | 11,172,445 | 6,431,771 |
| Less accumulated depreciation and amortization | 2,726,274 | 1,356,744 |
| | 8,446,171 | 5,075,027 |
| Construction in progress (Note 3) | 11,112,064 | 72,496 |
| | 19,558,235 | 5,147,523 |
| Other long-term assets (Note 4) | 2,772,500 | 371,264 |
| | $41,956,667 | $20,272,845 |

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**EDWARDS CORPORATION AND SUBSIDIARIES**
**CONSOLIDATED BALANCE SHEETS**

| LIABILITIES AND COMMON STOCKHOLDERS' EQUITY — December 31 | 1982 | 1981 |
|---|---|---|
| Current liabilities: | | |
| Current portion of long-term debt | $ 456,988 | $ 339,527 |
| Accounts payable | 3,373,016 | 1,879,591 |
| Income taxes payable | 12,000 | 81,000 |
| Accrued liabilities (Note 5) | 2,026,310 | 1,805,355 |
| Deferred revenue, principally advance payments | 3,143,218 | 1,300,731 |
| Total current liabilities | 9,011,532 | 5,406,204 |
| Deferred income taxes | --- | 12,577 |
| Long-term debt (Note 7) | 21,439,687 | 1,298,290 |
| Common stockholders' equity (Notes 7, 8 and 9): | | |
| Common stock, $.10 par value. Authorized 10,000,000 shares; issued 3,264,349 shares and 3,240,233 shares at December 31, 1982 and December 31, 1981 | 326,435 | 324,023 |
| Additional paid-in capital | 12,888,595 | 13,029,788 |
| Retained earnings (deficit) | (1,381,713) | 721,287 |
| | 11,833,317 | 14,075,098 |
| Less: Unearned compensation | 317,442 | 508,897 |
| Cost of 15,000 common shares held in treasury | 10,427 | 10,427 |
| Total common stockholders' equity | 11,505,448 | 13,555,774 |
| Commitments (Note 10) | | |
| | $41,956,667 | $20,272,845 |

See accompanying notes to consolidated financial statements.

## 1. SUMMARY OF ACCOUNTING PRINCIPLES

**Principles of Consolidation:**

The consolidated financial statements include the accounts of the parent company and its wholly owned subsidiaries, after elimination of significant intercompany accounts and transactions.

**Revenue Recognition:**

At the time of entering into licensing agreements for the use of proprietary software, the Company recognizes the lesser of one-half of the revenue or the nonrefundable portion of the agreement price paid by the customer at that time. The remainder of the agreement price is recognized as revenue upon effective delivery of the software. Revenue related to other services is recognized as the services are performed.

**Computer Software and Educational Courseware Construction Costs:**

The Company owns various proprietary computer software products that it licenses to customers and operates in its computer services facility. Costs related to the enhancement, improvement, and adaptation to particular requirements of the Company's existing proprietary software are expensed as incurred. The costs of purchased software are also expensed as incurred. The costs incurred in the search for or evaluation of product or process alternatives or in the design of pre-production models or in conceptual formulation or translation of knowledge into designs for new or significantly improved software products are charged to research and development expense as incurred. Net software construction costs amounted to $9,634,616 and $5,060,840 at December 31, 1982 and 1981, respectively.

The Company designs and constructs educational courseware that aids customers in effectively utilizing the Company's software products. These courseware construction costs are expensed as incurred. Net educational courseware construction costs amounted to $1,711,488 and $536,380 at December 31, 1982 and 1981, respectively.

**Income Taxes:**

Provisions for Federal and state income taxes include deferred income taxes representing the tax effects of timing differences between taxable and financial statement income. Income taxes have not been provided for on the undistributed earnings of the Company's Domestic International Sales Corporation (DISC), since it is the Company's intent to reinvest such earnings indefinitely.

Investment tax credits are recognized as a reduction of income tax expense in the year the assets are placed in service. Research and development tax credits are recognized as a reduction of income tax expense in the year eligible costs are incurred.

Property and Equipment:

Property and equipment are carried at cost. Certain items of equipment acquired under capital lease agreements, which are essentially financing arrangements, have been capitalized and are reflected in the accompanying consolidated balance sheets as assets under property and equipment and as related obligations under long-term debt.

Depreciation of computer equipment, and furniture, fixtures, and equipment, including assets under capital leases, is computed on the straight-line method based on estimated useful lives of five or eight years. Prior to 1981 all property and equipment was being depreciated over eight years. After 1980, computer equipment has been depreciated over five years to more accurately reflect its economic life. The effect of this change is not material to the financial statements. Leasehold improvements are amortized over the useful lives of the assets or the terms of the leases, whichever is less.

Deferred Debenture Costs:

Costs incurred in connection with the Company's sale of $20,000,000 of 11% convertible subordinated debentures in July 1982 are included in Other Long-Term Assets on the Company's balance sheet (see Note 4). These costs are being amortized on a straight-line basis over the 20-year term of the debentures.

Deferred Processing Acquisition Costs:

Costs incurred to acquire two small processing service businesses are included in Other Long-Term Assets on the Company's balance sheet (see Note 4). These costs are being amortized on a straight-line basis over the life of the processing contracts, which is 60 and 87 months, respectively.

Capitalization of Interest Costs:

In 1982, the Company applied Statement of Financial Accounting Standards No. 34, Capitalization of Interest Costs, to its accounting for construction in progress on its new headquarters building. This statement requires that interest costs related to certain long-term construction projects be capitalized rather

than charged directly to expense. Accordingly, of total interest costs of $1,478,842 incurred in 1982, $470,323 was capitalized. There were no significant construction projects that would have required interest to be capitalized in 1981 or 1980.

**Earnings Per Common Share:**

Earnings per common share and common stock equivalent is computed by dividing net income (less dividends on preferred stock in 1980) by the weighted average number of common shares and common stock equivalents (stock options and warrant) outstanding during each period.

Earnings per common share assuming full dilution is computed by dividing net income (after adjusting for non-capitalized interest on debentures, net of tax, for 1980 and 1982) by the weighted average number of common shares and common stock equivalents. For 1980, weighted shares included common shares applicable to the 10% convertible subordinated debentures and preferred stock, which were converted in 1980 (see Note 7). For 1982, weighted shares included common shares applicable to the 11% convertible subordinated debentures issued in July 1982 (see Note 7).

**Translation of Foreign Currencies:**

Effective January 1, 1982, the Company adopted the provisions of Statement of Financial Accounting Standrds No. 52, Foreign Currency Translation. In accordance with this statement, the U.S. dollar has been selected as the functional currency for all foreign subsidiaries and, accordingly, foreign currency translation adjustments and foreign currency transaction gains and losses, which were immaterial in amount during 1982, are reflected in income.

The balance sheet accounts denominated in foreign currencies have been translated at current exchange rates for monetary items and at historical rates for all other items. Income and expense accounts have been translated at weighted average rates prevailing during the year, except for those accounts which related to assets and liabilities translated at historical rates.

**Reclassifications:**

Certain amounts relating to 1980 and 1981 have been reclassified to conform to the 1982 presentation.

## 2. UNBILLED ACCOUNTS RECEIVABLE

Unbilled accounts receivable consist primarily of customer accounts for which software product revenue has been earned and recognized in the financial statements but which have yet to be billed to customers. These accounts are payable in installments by customers within one year. Upon invoicing to customers, unbilled accounts receivable are classified as trade accounts receivable.

## 3. CONSTRUCTION IN PROGRESS

In February 1982, the Company exercised options to purchase 81 acres of land in Anytown, USA, for $2,030,000, upon which its new corporate headquarters is being built. The total estimated cost of the project is approximately $14,000,000. The Company will move to the new facility in April 1983. Financing for the construction was provided by the 11% convertible subordinated debentures issued July 1982 (see Note 7).

## 4. OTHER LONG-TERM ASSETS

Other long-term assets at December 31, 1982 and 1981 consist of the following:

| Year ended December 31 | 1982 | 1981 |
|---|---|---|
| Long-term unbilled accounts receivable | $ 1,500,000 | $ --- |
| Deferred debenture costs, net (Note 1) | 886,038 | --- |
| Deferred processing acquisition costs, net (Note 1) | 386,462 | 371,264 |
| | $ 2,772,500 | $ 371,264 |

Long-term unbilled accounts receivable consist primarily of customer accounts for which software product revenue has been earned and recognized in the financial statements but which have yet to be billed to customers. These accounts are payable in installments by customers with terms extending beyond one year. Only the portion of customers' payments that extend beyond one year are classified as long-term assets (Note 2).

## 5. ACCRUED LIABILITIES

Accrued liabilities consist of:

| Year ended December 31 | 1982 | 1981 |
|---|---|---|
| Accrued commissions | $ 488,355 | $ 640,257 |
| Accrued bonuses | 647,264 | 573,912 |
| Accrued vacation | 404,537 | 265,193 |
| Accrued salaries | 488,429 | 291,309 |
| Other | (2,275) | 34,684 |
| | $ 2,026,310 | $ 1,805,355 |

## 6. LINE OF CREDIT

At December 31, 1982 and 1981, the Company had a bank commitment for a $6,000,000 revolving line of credit available through December 31, 1983, all of which was unused at December 31, 1982 and 1981. A compensating balance of one and one-half percent of the commitment is required by the bank. The annual interest rate is one-half of one percent above the bank's prime rate, plus a commitment fee of one-eighth of one percent per year on the full amount of the commitment. The outstanding balance at December 31, 1983, if any, will convert to a term loan with interest based on the prime rate at that date, maturing in monthly installments to December 31, 1986. The line of credit is unsecured.

## 7. LONG-TERM DEBT AND REDEEMABLE PREFERRED STOCK

Long term debt at December 31, 1982 and 1981 is summarized as follows:

| Year ended December 31 | 1982 | 1981 |
|---|---|---|
| 11% convertible subordinated debentures due July 1, 2002..... | $20,000,000 | $ --- |
| 12.3%-21.4% capital lease obligations payable in monthly installments to March 1987..... | 1,466,675 | 1,630,344 |
| 10.0%-16.1% equipment contracts payable in monthly installments to April 1987..... | 430,000 | 7,473 |
| Less current portion..... | (456,988) | (339,527) |
| | $21,439,687 | $ 1,298,290 |

On July 9, 1982, the Company issued $20,000,000 of 11% convertible subordinated debentures due July 1, 2002, with interest payable January 1 and July 1.

The debentures are convertible into shares of common stock of the Company at a conversion price of $14.50 per share (equivalent to a conversion rate of approximately 68.97 shares of common stock for each $1,000 principal amount of the debentures), subject to certain adjustments.

The debentures are redeemable at any time on no less than 30 days notice at the option of the Company, in whole or in part, at redemption prices declining from 111.0% of the principal amount initially to 100% of the principal amount on and after July 1, 1992, together with accrued interest. However, prior to July 1, 1984, the debentures may not be redeemed unless, for a period of 30 consecutive trading days immediately preceding the date of the notice of redemption, the closing bid price for the Company's common stock has averaged at least 150% (or $21.75 per share) of the conversion price of the debentures. Annual sinking fund payments of $1,500,000, commencing on July 1, 1992, are calculated to retire 75% of the issue prior to maturity.

Aggregate minimum annual payments due on long-term debt, including capital leases, at December 31, 1982 are as follows: $1983, $456,988; 1984, $469,434; 1985, $478,588; 1986, $394,373; 1987, $97,295; and thereafter, $-0-.

Future minimum lease payments under capital leases together with the present value of the net minimum lease payments as of December 31, 1982, are summarized as follows:

| December 31 | 1982 |
|---|---|
| 1983 | $ 563,176 |
| 1984 | 523,278 |
| 1985 | 479,257 |
| 1986 | 332,069 |
| 1987 | 11,526 |
| Total minimum lease payments | 1,909,306 |
| Amount representing interest | (442,631) |
| Present value of net minimum lease payments | $ 1,466,675 |

Equipment under capitalized leases, with costs approximately $2,628,000 and $2,415,000 and accumulated depreciation approximating $751,000 and $276,000 at December 31, 1982 and 1981, respectively, is included in property and equipment.

**Redeemable Preferred Stock:**

On July 23, 1980, the Company completed the public sale of an additional 660,000 shares of common stock at $5.00 per share, which resulted in the automatic conversion of the Company's 10% subordinated convertible debentures and 8% cumulative convertible preferred stock into 300,000 shares of common stock.

## 8. COMMON STOCK

On March 27, 1981, the Board of Directors declared a three-for-two stock split effected in the form of a 50% stock dividend, paid on June 1, 1981, to holders of record of common shares on May 25, 1981. As a result, a transfer of $107,741 was made from retained earnings to common stock for the par value of shares issued. All share, price per share, and stock option data appearing in the consolidated financial statements and notes thereto has been adjusted retroactively, as of December 31, 1981, to reflect the stock dividend.

## 9. STOCK OPTIONS, RESTRICTED STOCK AGREEMENTS, AND WARRANT

Stock Options:

The Company has options outstanding under three stock option plans as of December 31, 1982. The Qualified Stock Option Plan expired on January 17, 1979; options granted under this plan continue to be exercisable until December 8, 1983. Option prices could not be less than 100% of fair market value on the date of grant. Options granted are exercisable in four annual and cumulative installments beginning one year from the date of grant and expire five years from the date of grant.

Under the General Stock Option Plan, option prices could not be less than 100% of fair market value on the date of grant and the options granted are exercisable immediately and expire five years from the date of grant. The General Stock Option Plan was terminated in 1979; options granted under the Plan continue to be exercisable until November 15, 1983.

The 1979 General Stock Option Plan originally provided that option prices may not be less than 85% of fair market value on the date of grant, that options granted become exercisable in four annual and cumulative installments beginning one year from date of grant, and that the options expire ten years from the date of grant. The Plan was amended at the May 12, 1983 Annual Shareholders' Meeting to allow for the granting of incentive stock options as provided in the Economic Recovery Tax Act of 1981. Outstanding stock options under the Plan were converted to incentive stock options. The 1979 General Stock Option Plan, as amended, provides that option prices may not be less than 100% of fair market value on the date of the grant, and that options granted become exercisable in three annual and cumulative installments beginning one year from the date of grant. Options must be fully exercised in the order in which they were granted before subsequent options may be exercised, and expire ten years from the date of grant. On the date the options are exercised, the excess of the proceeds received over the par value of the shares is credited to additional paid-in capital for all plans. No amounts are charged to income with respect to the stock option transactions under these plans.

| | Available for Grant | Options Outstanding | | Options Currently Exercisable |
|---|---|---|---|---|
| | Shares | Shares | Price per Share | Shares |
| Balance at December 31, 1980..... | 63,649 | 149,125 | $ .67 to $11.33 | 62,043 |
| Options granted..... | (16,720) | 16,720 | | |
| Options exercised..... | | (45,920) | $ .67 to $ 4.58 | |
| Options terminated.... | 4,875 | (4,875) | | |
| Balance at December 31, 1981..... | 51,804 | 115,050 | $ .67 to $15.88 | 52,893 |
| Options authorized.... | 100,000 | | | |
| Options granted..... | (147,318) | 147,318 | | |
| Options exercised..... | | 17,448 | $ .67 to $11.75 | |
| Options terminated.... | 5,675 | (5,675) | | |
| Balance at December 31, 1982..... | 10,161 | 239,245 | $1.67 to $18.25 | 58,816 |

During 1980, options for 49,350 shares were exercised at prices ranging from $.67 to $3.75 per share.

**Restricted Stock Agreements:**

The Restricted Stock Plan was terminated in 1982; shares will no longer be issued under that Plan. The terms of the Plan, however, remain in effect for those shares previously issued.

The Company's Restricted Stock Plan reserved common stock for issuance to officers and employees at the discretion of the Board of Directors. The Company has also sold restricted stock to officers of the Company at $1.00 per share. The rights to restricted shares vest with respect to one-third of the shares in each of the third, fourth and fifth years of service after issue. The difference between the purchase price, if any, and the fair market value of the common stock at the date on which the number of shares are determined and become issuable is considered to be compensation. This amount is charged to expense over the periods of the restriction including the year of the grant. At December 31, 1982, there were no restricted common shares issuable related to 1982 grants.

During 1981 and 1980, 61,575 and 53,136 restricted shares were issued with an aggregate market value at the date they were issuable of $723,506 and $232,863, respectively. Participants

eligible to receive restricted stock in 1982 were given an opportunity to elect incentive stock options under the terms of the 1979 General Stock Option Plan, as amended. The formula converting the restricted stock awards to incentive stock options was 1.42 shares for each allocated share of restricted stock, plus a cash bonus of $2.00 per allocated share of restricted stock. During 1982, 413 restricted shares with an aggregate market value of $6,298 were issued. Consideration received from participants in the Restricted Stock Plan in 1980 was $68,349. No consideration was received in 1981 or 1982.

**Warrant**

In 1980, the Company issued a warrant to purchase 30,000 shares of common stock in connection with a public offering of its common stock. The initial exercise price was $5.50 per share, subject to annual increases of $.50 per share. The exercise period was four years, from July 23, 1981 through July 22, 1985. In June 1982, the Company reacquired the warrant for $202,000.

## 10. COMMITMENTS

Aggregate minimum annual rentals due under long-term noncancellable operating leases of property and equipment, exclusive of capital leases (see Note 7), are as follows at December 31, 1982: 1983, $708,000; 1984, $390,000; 1985, $65,000; 1986, $19,000; 1987, $19,000.

Rent expense, exclusive of capital leases, for the years ended December 31, 1982, 1981 and 1980 was $1,275,304, $684,163 and $400,000, respectively.

In January 1983, the Company exercised an option to purchase its existing corporate headquarters facility and the adjoining land in Anytown, USA, for $1,330,000. As of December 31, 1982, the facility was under an operating lease, with payments totaling $280,000 through December 31, 1984.

## 11. COMPANY BUSINESS

Industry Segment:

For each of the last five years, the Company's business has been in a single industry segment, computer services -- the design, construction, and marketing of computer software, educational courseware, and related services. Therefore, all of the revenue, operating profit, and assets of the Company are attributable to that industry segment.

International Operations:

The Company is engaged in one industry segment, both domestically and worldwide.

Sales and marketing operations outside the United States are conducted principally through a sales subsidiary in the United Kingdom, by direct export sales from the parent corporation, and through various representative and distributorship arrangements.

The Company's international operations include a facility in Ireland that provides software products to the international sales subsidiary. A portion of international sales consists of software contracted domestically, and either sold to the international sales subsidiary or to the client directly as an export sale.

Intercompany transfers (sales) between geographic areas are accounted for at prices which generally approximate the prices of similar transactions with unaffiliated parties.

The retained earnings of all the Company's international subsidiaries have been reinvested to support their operations.

Revenues by geographic area are summarized as follows:

| Revenue | |
|---|---|
| Sales to Unaffiliated Customers: | |
| United States | $21,897,334 |
| Europe | 2,523,683 |
| Other foreign | 654,482 |
| Total Sales to Unaffiliated Customers | 25,075,499 |
| Intercompany Sales between Geographic Areas to: | |
| United States | 63,818 |
| Europe | 1,407,643 |
| Total Sales between Geographic Areas | 1,471,461 |
| Intercompany Eliminations | (1,471,461) |
| Revenue | $25,075,499 (1) |

Revenues attributable to geographic areas other than the United States were immaterial in 1980 and 1981.

(1) Includes export sales to customers of $1,322,143.

## 12. RESEARCH AND DEVELOPMENT EXPENSE

Research and development expense amounted to $123,101, $6,068, and $-0- in 1982, 1981, and 1980, respectively.

## REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

The Board of Directors and Shareholders
Edwards Corporation:

We have examined the consolidated balance sheets of Edwards Corporation and subsidiaries as of December 31, 1982 and 1981 and the related consolidated statements of operations, common stockholders' equity, and changes in financial position for each of the years in the three-year period ended December 31, 1982. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the aforementioned consolidated financial statements present fairly the financial position of Edwards Corporation and subsidiaries at December 31, 1982 and 1981 and the results of their operations and the changes in financial position for each of the years in the three year period ended December 31, 1982, in conformity with generally accepted accounting principles applied on a consistent basis.

PEAT, MARWICK, MITCHELL & CO.

Anytown, USA
March 23, 1983

# APPENDIX L

# ACCOUNTING ORGANIZATIONS

In the early stages of this research, the author sent letters to a number of accounting organizations to inquire whether there were any rules addressing the issue of software accounting in their respective countries. Many of the organizations responded to my inquiry; some did not. The answers of those responding were all in the negative. No country from which an accounting organization responded had any rules addressing software accounting. However, several organizations responded that they follow either the American, British or International rules.

Although apparently no country has rules addressing the treatment of computer software, Mr. B.V. Piggott, former Chairman(1981-84) of the ICMA's Information Technology Committee, a major policy-making committee of the Institute, has offered his views to a third party who was kind enough to pass them on to me. Mr. Piggott is of the opinion that all software expenditures should be expensed as incurred, with the possible exception of initial software

expenditures, which might be classified as deferred revenue and written off over a short period, say, three to five years, similar to initial goodwill. His opinion is based on the perception that "The end result of writing programs does not have the same type of permanence as a factory, a vehicle or an item of plant. Protection of copyright is of doubtful efficacy, a market is rarely assured and rival products can cause problems at any time, maintenance costs can be substantial and are often difficult to distinguish from improvements. One could go further and say that software is not tangible but a collection of ideas which must be transcribed to make them marketable."

His view is a good summary of the expensing view that is being advocated in the United States. However, I do not agree with his arguments. Although a software program does not have the same type of permanence as a factory, a vehicle or an item of plant, many software products can reasonably be expected to have economic value for at least 12 months, and some software is used for a number of years even though better software has been developed since the

introduction of the original software in question. Copyright law pertaining to software is in a state of flux in the United States and, although it is not always possible to obtain a copyright on software, it is by no means impossible. In any event, a copyright can be applied for, and it will not be known for years after the application whether the copyright is valid, so having a copyright of questionable validity is not a sufficient reason to expense software.

His argument that a market is rarely assured could be advanced for any number of other products as well as for software. Software is not unique in this respect. However, much market research is done prior to the completion of a software product, and construction of the product would not go forward if a market were not reasonably assured. Although rival products can cause problems at any time, this fact is not sufficient to warrant expense treatment. If and when another product comes along that causes problems that are of such magnitude to make the original software product worthless, the costs that have been accumulated for the construction of that product can then be written off to expense. In fact, the matching concept would

require such treatment. Expensing such costs as incurred would be a mismatch of revenue and expense.

Mr. Piggott is correct when he states that maintenance costs can be substantial and are often difficult to distinguish from improvements. When classification of such costs are difficult, it is up to management to make an informed decision based on all the facts and circumstances, just as they would do with a plant expenditure that could reasonably be viewed as either maintenance or an improvement. In less difficult cases, enhancements should be capitalized and maintenance costs should be expensed.

His argument regarding tangibility has been advanced by the various U.S. State and federal courts since 1972, and the courts have been unable to agree on whether software is tangible or intangible. However, whether software is tangible or not is beside the point. If the software in question has probable future economic benefit, it fits the definition of an asset and should be classified as such. If not, then it should be expensed.

Below are the names of the accounting organizations contacted in reference to national software accounting policies.

## Australia

Australian Society of Accountants

Institute of Chartered Accountants in Australia

## Argentina

Federacion Argentina de Colegios

## Austria

Institut Osterreichischer Wirtschaftsprufer

Kammer der Wirtschaftstreuhander

## Bahamas

Bahamas Institute of Chartered Accountants

**Bangladesh**

The Institute of Chartered Accountants of Bangladesh

The Institute of Cost & Management Accounting of Bangladesh

**Belgium**

Chambre Belge des Comptables

College National des Experts Comptables de Belgique

Institut des Reviseurs agrees par la Commission Bancaire

Institut des Reviseurs D'Enterprises

**Bermuda**

The Institute of Chartered Accountants of Bermuda

**Bolivia**

Colegio de Economistas

Federacion National de Contadores

**Botswana**

Association of Accountants in Botswana

## Brazil

Instituto dos Auditores

## British Isles

The Association of Authorised Public Accountants

Association of Certified Accountants

Association of Cost and Executive Accountants

Association of International Accountants

British Association of Accountants and Auditors

Chartered Institute of Public Finance

Institute of Administrative Accounting

The Institute of Certified Public Accountants in Ireland

Institute of Chartered Accountants in England and Wales

Institute of Chartered Accountants in Ireland

Institute of Chartered Accountants in Scotland

Institute of Cost and Management Accountants

Institute of Internal Auditors, UK Chapter

Society of Company and Commercial Accountants

**Burma**

Burma Society of Accountants

**Canada**

Canadian Institute of Chartered Accountants

Certified General Accountants' Association of Canada

La Corporation professionnelle des comptables generaux licencies du Quebec

Ordre des comptables agrees du Quebec

Canadian Association of Data Processing Service Organizations

Society of Management Accountants of Canada

**Colombia**

Institute Nacional de Contadores Publicos

**Chile**

Colegio de Contadores

Sociedad Nacional de Contadores

**Costa Rica**

Colegio de Contadores Publicos de Costa Rica

**Cyprus**

Institute of Certified Public Accountants of Cyprus Ltd.

**Denmark**

Foreningen af Statsautoriserede Revisorer

**Dominican Republic**

Instituto de Contadores Publicos Autorizados

**Equador**

Federacion Nacional de Contadores

**Ethiopia**

Ethiopian Professional Association of Accountants and Auditors

**Europe**

Union Europeenne des Experts Comptables Economiques et Financiers

**Fiji**

The Fiji Institute of Accountants

**Finland**

KHT-Yhdistys-Foreningen CGR

**France**

Compagnie Nationale des Commissaires aux Comptes

Conseil National de la Comptabilite

Conseil Superieur des l'Ordre des Experts Comptables et des Comptables Agrees

Societe de Comptabilite de France

Institut Francais des Experts Comptables

Societe des Experts Comptables Francais

**Germany**

Institut der Wirtschaftsprufer in Deutschland e.V.

**Ghana**

Institute of Chartered Accountants(Ghana)

**Greece**

The Institute of Certified Public Accountants of Greece

The Institute of Incorporated Public Accountants

**Guatemala**

Association Nacional de Contadores

Corporacion de Contadores de Guatemala

Colegio de Economistas, Contadores Publicos y Auditores

**Guyana**

Institute of Chartered Accountants of Guyana

**Honduras**

Colegio de Peritos Mercantiles y Contadores Publicos de Honduras

**Hong Kong**

Association of Chartered Accountants in Hong Kong

Hong Kong Society of Accountants

**Iceland**

Felag Loggiltra Endurskodenda

**India**

Institute of Chartered Accountants of India

Institute of Cost and Works Accountants of India

**Indonesia**

Ikatan Akuntan Indonesia

**Israel**

Institute of Certified Public Accountants in Israel

## Italy

Federazione Nazionale dei Collegi dei Ragionieri

Consiglio Nazionale dei Dottori Commercialisti

Consiglio Nazionale dei Ragionieri e Periti Commerciali

Instituto di Richerche Economico-Aziendali

## Japan

Japanese Institute of Certified Public Accountants

Nippon Koninkaikeishi Kyokai

## Kenya

Association of Accountants in East Africa

## Lebanon

Middle East Society of Associated Accountants

## Luxembourg

Ordre des Experts Comptables Luxembourgeois

**Malaya**

Malaysian Association of Certified Public Accountants

**Malta**

The Institute of Accountants

**Mexico**

Colegio de Contadores Publicos de Mexico

Instituto Mexicano de Contadores Publicos

**Monaco**

Ordre des Experts-Comptables de la Principaute de Monaco

**Netherlands**

Nederlands Instituut van Registeraccountants

**New Zealand**

New Zealand Society of Accountants

**Nigeria**

Institute of Chartered Accountants in Nigeria

**Norway**

Norges Statsautoriserte Revisorers Forening

**Pakistan**

Institute of Chartered Accountants of Pakistan

Institute of Cost and Management Accountants of Pakistan

**Panama**

Associacion de Contadores y Contadores Publicos Autorizados

Colegio de Contadores Publicos Autorizados de Panama

Associacion de Mujeres Contadores de Panama

**Paraguay**

Colegio de Contadores de Paraguay

**Peru**

Federacion de Colegios de Contadores Publicos del Peru

Instituto de Contadores del Peru

**Philippines**

Philippine Institute of Certified Public Accountants

Philippine Association of Management Accountants

**Portugal**

Sociedade Portuguesa de Contabilidade

**Puerto Rico**

Colegio de Contadores Publicos Autorizados de Puerto Rico

**Republic of China**

National Federation of Certified Public Accountants Associations of the Republic of China

Singapore

Singapore Society of Accountants

South Africa

The National Council of Chartered Accountants(SA)

South America

Colegio de Contadores Publicos de Nicaragua

South Korea

Korean Institute of Certified Public Accountants

Spain

Illustre Colegio Official de Titulares Mercantiles de Barcelona

Instituto de Censores Jurados de Cuentas de Espana

Sri Lanka

The Institute of Chartered Accountants of Sri Lanka

Institute of Cost and Management Accountants

**Sweden**

Foreningen Auktoriserade Revisor FAR

Svenksa Revisorsamfundet SRS

**Switzerland**

Chambre Suisse des Societies fiduciaires et des Experts-Comptables

**Tanzania**

The National Board of Accountants and Auditors

**Thailand**

Institute of Certified Accountants and Auditors of Thailand

**Turkey**

Turkiye Muhasbe Uzmanlari Dernegi

**Uruguay**

Colegio de Doctores en Ciencias Economicas y Contadores del Uruguay

**Venezuela**

Asociacion de Contadores de Venezuela(CNTC)

Federacion de Colegios de Contadores Publicos de Venezuela

Colegio Nacional de Tecnios en Contabilidad

**West Indies**

The Institute of Chartered Accountants of Barbados

Institute of Chartered Accountants of Jamaica

Institute of Chartered Accountants of Trinidad and Tobago

**Yugoslavia**

Savez Racunovodstvenih i Finansijskih Radnika Jugoslavije

**Zambia**

Zambia Association of Accountants

# APPENDIX M

## COMMITTEE AND TASK FORCE MEMBERS

## NATIONAL ASSOCIATION OF ACCOUNTANTS

## MANAGEMENT ACCOUNTING PRACTICES COMMITTEE

Henry R. Anderson
Director, School of Accountancy
University of Central Florida, Orlando

Dennis R. Beresford
Partner
Ernst & Whinney, Cleveland

Louis Bisgay
Director, Management Accounting Practices
National Association of Accountants, New York

John F. Chironna, Committee Chairman
Director of Accounting Practices
IBM, Tarrytown, NY

Bernard R. Doyle
Manager, Corporate Accounting Services
General Electric Co., Fairfield, CT

James Don Edwards
J. M. Tull Professor of Accounting
University of Georgia, Athens

Penelope A. Flugger
Auditor
Morgan Guaranty Trust Co., New York

William J. Ihlanfeldt
Assistant Controller
Shell Oil Company, Houston

Robert W. McGee
Manager, Accounting Practices
National Association of Accountants, New York

Earl R. Milner
Vice President and Controller
A. O. Smith Corporation, Milwaukee

Bryan H. Mitchell
Controller
A. C. Nielsen Co., Northbrook, IL

Stanley R. Pylipow
Vice President - Finance & Administration
Fisher Controls, St. Louis

Allen H. Seed, III
Senior Consultant
Arthur D. Little, Inc., Cambridge, MA

William J. Shannon
Corporate Controller
Ingersoll Milling Machine, Rockford, IL

Howard L. Siers
Assistant Comptroller
E.I. duPont de Nemours & Company, Inc., Wilmington, DE

Robert B. Sweeney
Memphis State Chair of Accountancy
Memphis State University

Armin C. Tufer
Partner
Deloitte, Haskins & Sells, Chicago

Arthur Wyatt
Partner
Arthur Andersen & Co., Chicago

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Manager, Accounting Practices
National Association of Accountants, New York

Allen H. Seed, III
Senior Consultant
Arthur D. Little, Inc., Cambridge, MA

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Assistant Treasurer
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Howard L. Siers
Assistant Comptroller
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Touche Ross & Company, New York

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Clifton, Gunderson & Company, Denver

Roger Cason, Chairman
Accounting Standards Executive Committee, New York

Naomi S. Erickson
Manager, Accounting Standards
AICPA, New York

Penelope Flugger
Auditor
Morgan Guaranty Trust Co., New York

James Gillespie
Main Hurdman, Boston

William Graves
President
Management Science America, Inc., Atlanta

Ralph L. Harris
Financial Consultant
IBM, White Plains, NY

Robert K. Herdman
Securities and Exchange Commission, Washington, D.C.

Sally Hoffman
Main Hurdman, Stamford, CT

Julia Johnston
ADAPSO, Arlington, VA

Thomas P. Kelly
Vice President - Technical
AICPA

Robert W. McGee
Manager, Accounting Practices
National Association of Accountants, New York

I. Sigmund Mosley, Jr.
Vice President, Secretary, Treasurer
Management Science America, Inc., Atlanta

Francis O'Brien
Arthur Young & Company, Los Angeles

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Vice President
Informatics General Corporation, Woodland Hills, CA

Gregory A. Ray
Financial Accounting Standards Board, Stamford, CT

Paul Rosenfield
Director, Accounting Standards
AICPA, New York

Lawrence J. Schoenberg
Chairman & Chief Executive Officer
AGS, Mountainside, NJ

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# ADDENDUM TO BIBLIOGRAPHY

This thesis was prepared in conformance with A Manual of Style for the Preparation of Papers and Reports, by Keithley Schreiner, 3rd edition, (Cincinnati: South-Western Publishing Company, 1980).

Bibliographic sources were obtained from a variety of sources. The AICPA's Accountants Index was used extensively, as was the Index To Legal Periodicals. The Index To Business Periodicals and Dissertation Abstracts were also used. Several computer data bases were also used, including LEXIS, NAARS and DIALOG. The libraries of the AICPA, NAA and Conference Board were visited frequently, especially during the early stages of the research.